

COAL AGE

Vol. 12

NEW YORK, OCTOBER 27, 1917

No. 17

They All Come Back



"IT ALL LOOKS GOOD WHEN IT'S FAR AWAY" —

IT IS INEVITABLE that a period of prosperity and high wages in certain sections of the country must draw men from less prosperous sections. But it is unfortunate that thousands of men in seeking for their share of individual prosperity will leave settled homes and good positions with tried employers simply because they are lured by the beckoning of the job that's far away.

To the man who is considering such a move the wisdom of an employee who has made a success working for one concern is heartily commended. He was asked not long ago why he had never cared to work for other companies, many of which had bid for his services.

He answered: "I have always avoided the ford in which so many of my friends have been drowned."

Explaining this, he went on to tell of the men whom he had seen leave good jobs and good prospects to accept a little better salary or to enter some line of business foreign to the work they knew most about.

"I have watched them go for years," he said, "and they nearly all come back! Some have returned so broken in spirit by reason of failure at the thing they tackled they could never hope to regain the ground lost. Of the hundreds I've watched go, I can count on the fingers of one hand those who made good outside of the field of their experience."

Many men could not do better than drink at the fountain of this man's experience. The miner or the clerk who sticks to his own job and his own concern in the present crisis has just the kind of loyalty to country that the nation needs most. Neither A nor B will profit in the long run by moving a thousand miles to take each other's job. And there is a lot of this A and B stuff going on in these United States today.

One thing that is despicable and devoid of any patriotic purpose just now is the appeal being made by certain minor local officials of organized labor to miners in various districts to go on strike unless their demands—whether reasonable or not—are met and move to other sections. Men who respond to such a call are far more selfish than patriotic. And they too—if they go—will some day "come back," for the place where a man makes his home and raises his family will always irresistibly tug at his heart.

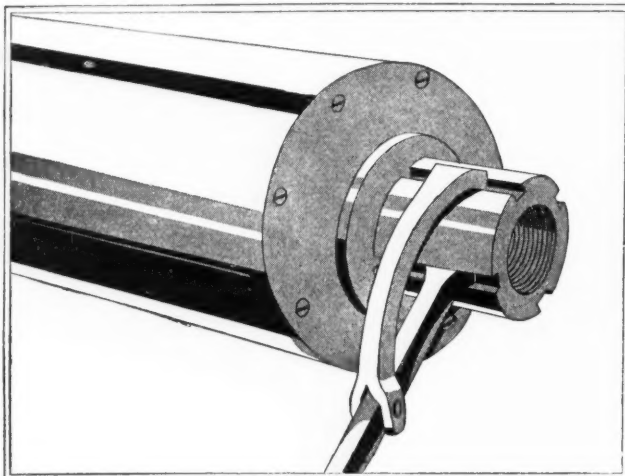
Stick to your job, man. View the scenery from your own back yard. You'll very likely find right in your own camp the diamonds of success you are looking for. And by sticking to your job and getting ready for the job ahead you'll serve your nation, your family and your district far more patriotically than the man who chases all over the country for selfish ends.

Never forget: "Nearly all of them come back."

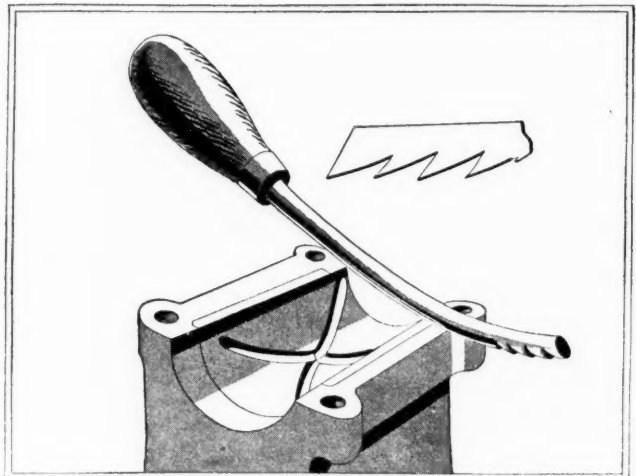


"—AND THEY ALL COME BACK."

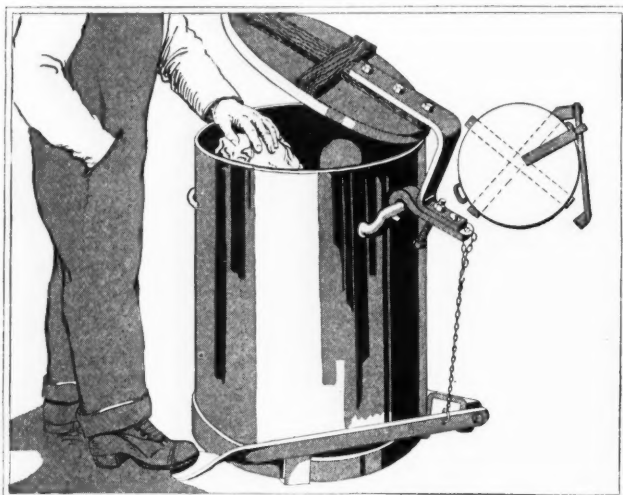
Ideas and Suggestions



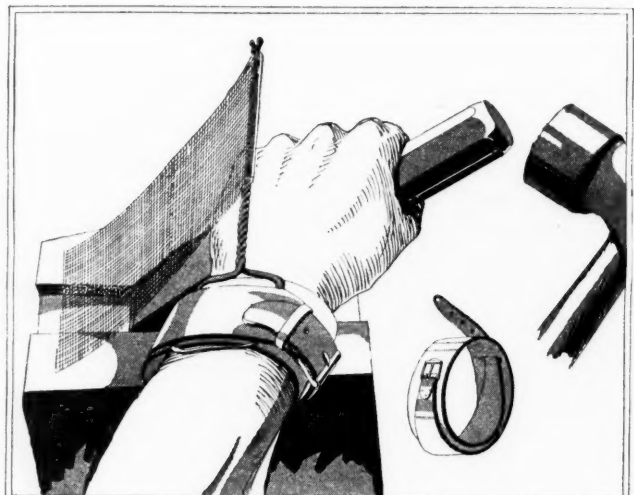
SLEEVES ARE EASILY HANDLED WITH THIS SPANNER



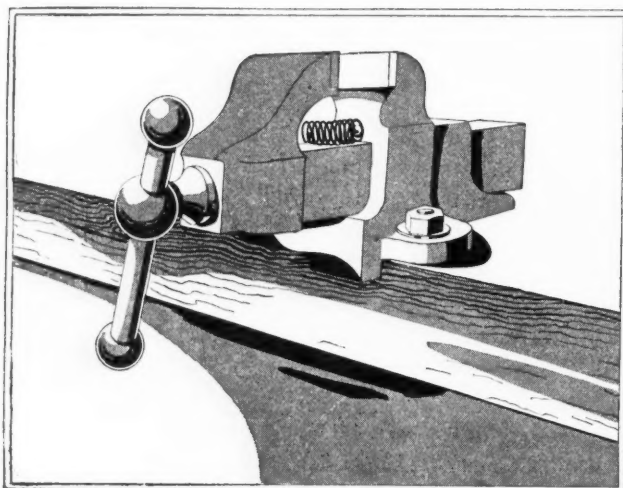
THIS OIL-GROOVE CUTTER WILL NOT DIG



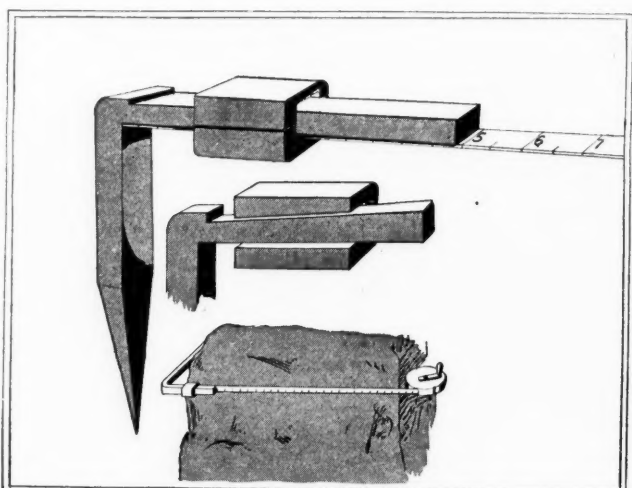
CAN ATTACHMENT THAT AIDS CLEANLINESS



SMALL BUT EFFICIENT CHIP GUARD

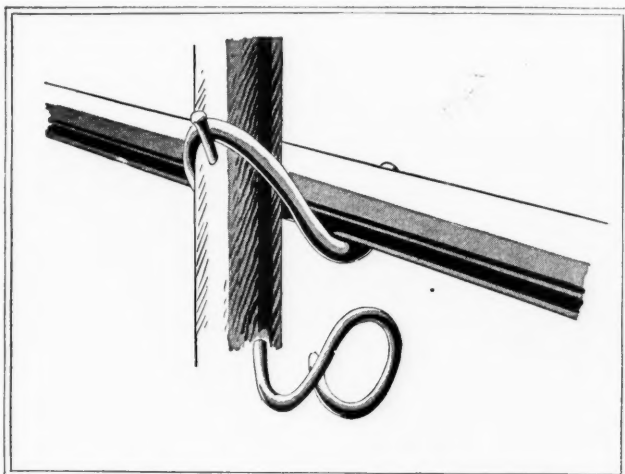


THE SPRING IS A GREAT AID ON WORN VISE JAWS

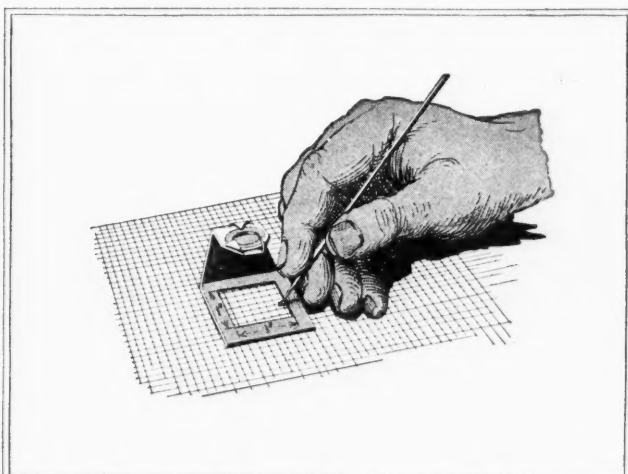


HOOK ATTACHMENT FOR RULE OR TAPE

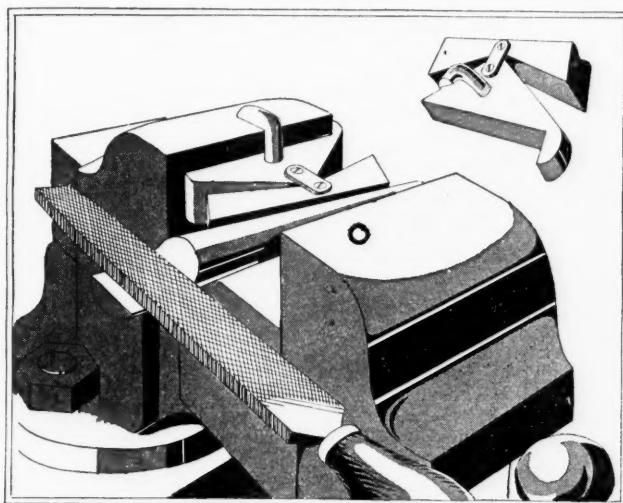
Little Things That Make Hard Tasks Easy



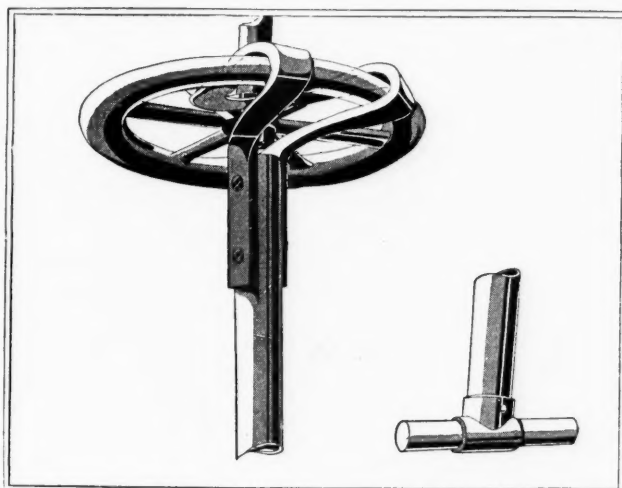
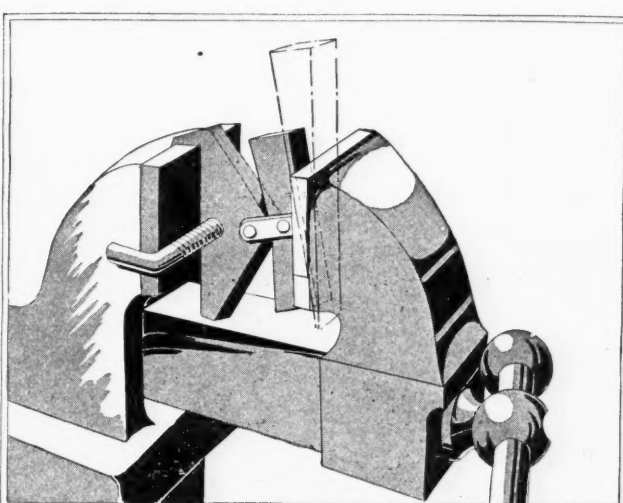
A HOOK THAT IS USEFUL FOR HOLDING PIPE



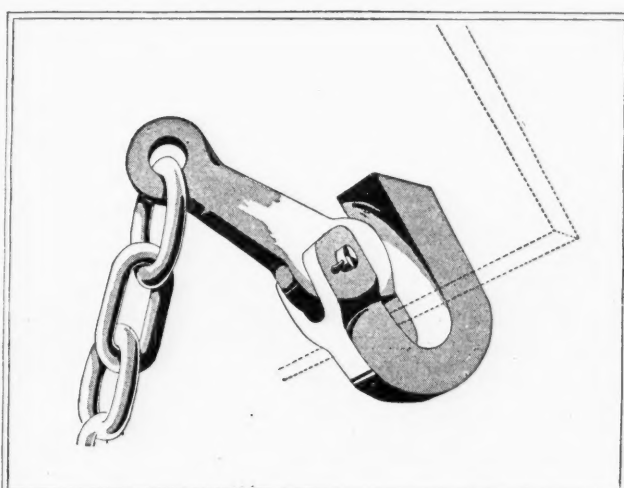
MESH COUNTER FOR LABORATORY USE



IT IS EASY TO FILE A TAPERED PIN WITH THIS JAW ATTACHMENT AS IT ALWAYS HAS A GOOD GRIP ON A TAPERED PIECE



NO HANDWHEEL TOO HIGH FOR THIS OUTFIT



ECCENTRIC CLAMP FOR HANDLING FLAT STOCK

Pillar Extraction in Thick Seams

By R. W. MAGRAW

General Superintendent, United States Fuel Co., Hiawatha, Utah



FACE OF A TYPICAL ROOM, TOP COAL UP

THE phrase, "conservation of natural resources," has been used as a slogan and, in many instances, as a club during recent years. Radicals have attempted to make it appear that those engaged in developing natural resources, such as coal, oil, gas, etc., were wilfully destructive of the bounties contained in "nature's storehouse."

No allowances were made for insurmountable difficulties, such as lack of market for byproducts, beds at present commercially unworkable due to high ash content or thinness, unavoidable loss of top and pillar coal due to bad roof, or in fact to any other cause.

Measures worked where upper unworkable beds were lost as a result of mining below were advised to be abandoned and allowed to remain idle until conditions warranted the profitable extraction of the upper beds first. A mining journal published an article advocating the replacement of all coal extracted with solid concrete, in order to insure maximum recovery of the pillars and to prevent subsidence of the roof strata.

WANTED TO WORK ENTIRE SEAM

A member of a commission advocated closing a large mine until conditions made possible the utilization of several feet of bottom coal which had been left down. A section of this part of the bed was shown to contain several bands of impurities aggregating 40 per cent. of its height, most of which would have been very difficult to eliminate; he was told that for several years after the opening of the mine an earnest effort

was made to work the entire seam, but that trade had finally demanded a better product than it was possible to produce without abandoning the bottom coal. But neither of these arguments "phased" him in the slightest degree. His argument was that the loss of even a ton of coal constituted a crime. His listeners concluded that he was more interested in posterity than in its progenitors of the present generation.

It is true that much coal has been lost in the past, due to careless or ignorant methods. Self-interest, however, dominates every industry, and the needless destruction of a part of the assets of any company will soon bring about reform.

COAL MINING HAS UNDERGONE A REFORM

Coal mining was for years a despised occupation. Little attention, other than collection of dividends, was given by those most interested; but during recent years a subtle change has taken place. Reforms have been inaugurated, safety and efficiency have become watchwords, and maximum extraction compatible with the aforementioned watchwords has been the practice for years in all well-ordered organizations.

Several years ago the writer, while showing a party of visitors through a mine containing a 28-ft. bed of coal with an excessively heavy overburden, was asked by a prominent conservationist, who was a member of the party, what percentage of extraction it was ultimately expected to obtain from the seam. Reply was made to the effect that 50 to 55 per cent. would be

considered good. This figure was hooted at by the conservation party, and the statement was made that coal of equal thickness was being mined in Europe and almost perfect extraction was being secured.

The longwall method was mentioned as being used in one or two instances of thick-seam mining abroad, as well as the filling method, through boreholes from the surface. The Government commission of experts, which went abroad in 1911, the report of whose trip is being anxiously awaited by the coal-mining fraternity, was given as authority for some of the statements made.

One or two of those present, including myself, questioned the possibility of working a bed such as the one undergoing examination on the longwall method. We also questioned the feasibility of filling a 28-ft. void with material brought in from the surface. Rough calculation showed that the cost of extraction by the filling method would be several times the highest selling price ever received in the district.

CONDITIONS ABROAD NOT LIKE THOSE OF UTAH

It was my great privilege at a somewhat later date to read, through the courtesy of the late Alexander Bowie, a copy of the personal notes of Erskine Ramsay, made while a member of the aforementioned Government commission. Mr. Ramsay's notes were very complete and covered inspections made of representative coal mines in England, Scotland, Wales, France, Belgium and Germany. In no instance were conditions paralleling those existing in the Utah coal fields mentioned as having been met with abroad.

The "perfect" extraction of an abnormally thick bed proved to be about 60 per cent., the seam being a dirty

one where a modified panel longwall slicing method was employed. Barrier pillars were lost, which cut down the ultimate extraction to the percentage mentioned.

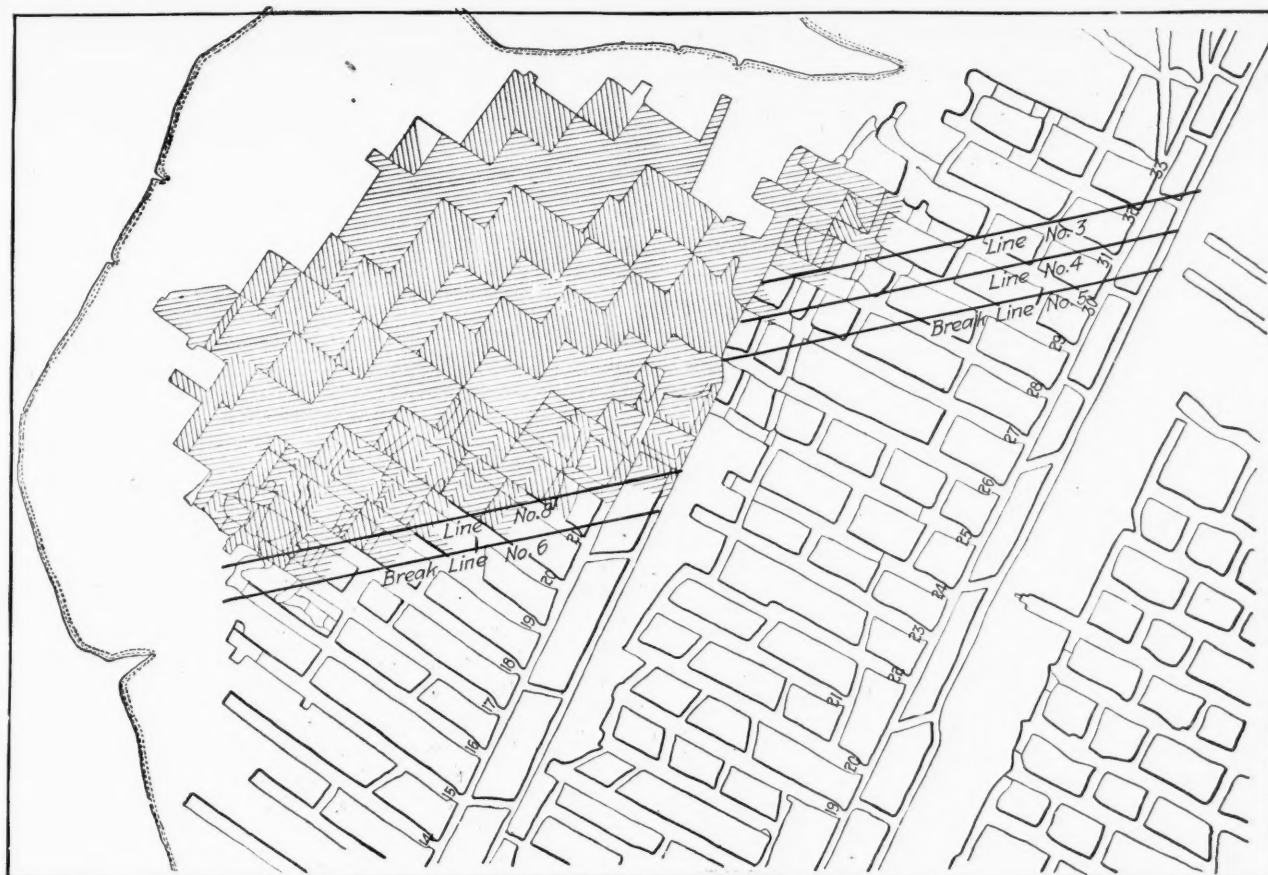
Beds having anything like a cover comparable to that existing in parts of the Rocky Mountain district were thin or at the best only of moderate thickness, thus reducing the difficulties of mining by a considerable degree.

Many of the mines operating in the Rocky Mountains contain seams of abnormal thickness, as judged by standards existing in the Appalachian coal fields. Mines are being worked under cover ranging from 2000 to 3000 ft. in thickness, and in some instances heavier cover is in prospect in the immediate future.

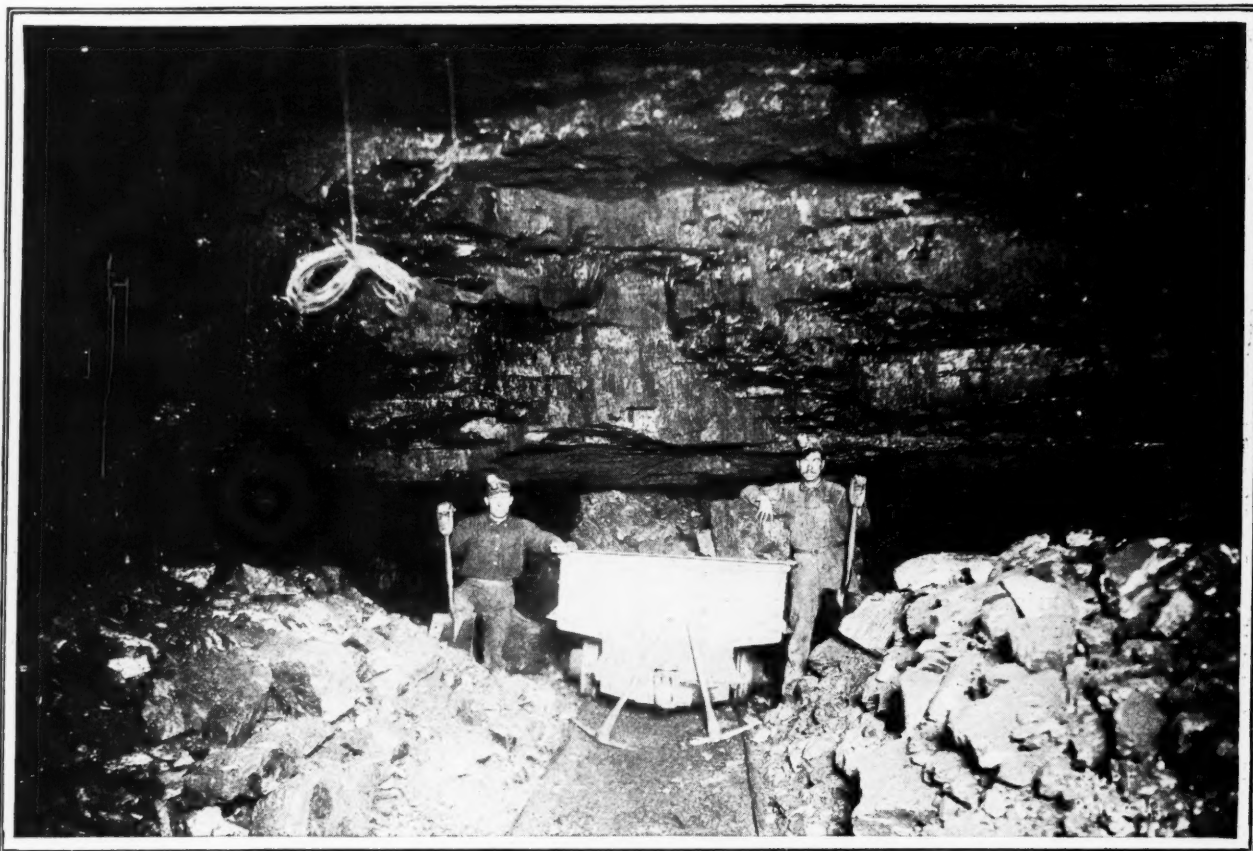
Outbursts of coal, unaccompanied by gas, attributable to roof pressure and internal strain, are of frequent occurrence. These outbursts have occurred in narrow work while advancing, and entries driven several thousand feet without turning a room have, at irregular intervals, shown this phenomenon. Coal was thrown from ribs with sufficient force to carry it against the opposite rib of a 12-ft. place. This action kept up for several months, gradually growing less until readjustment of pressure had taken place.

In several instances sudden readjustments of roof pressure, known locally as bounces, occurred in pillar workings with the result that pillars exploded violently and all open spaces in the area affected were filled with fine coal. Several lives were lost in this manner and much coal was unavoidably abandoned.

Under such circumstances operating officials could not be blamed for hesitancy in attacking pillars. Consequently, many mines were developed to large daily



PLAN OF MINING, SHOWING PROJECTED BREAK LINES



TAKING FIRST BENCH OF TOP COAL TO A HEIGHT OF 12 FEET

production, which was maintained solely from coal taken from advance workings.

The Black Hawk, Hiawatha and Mohrland mines of the United States Fuel Co., located at Hiawatha and Mohrland, Utah, were no exceptions to this rule, and prior to two years ago the only effort at pillar extrac-

tion had been made in one or two small areas on the outcrop.

It can readily be seen that a continuance of this policy would have resulted in early exhaustion of the mines, and would have furnished the conservationists with a splendid argument; for if no effort was made to



TWENTY-TWO FEET OF COAL WITH A CAVE IN THE BACKGROUND

extract pillars, it would appear that they were considered lost from the beginning. This would have been tantamount to acknowledging that at least 50 per cent. of the seam was not recoverable.

Considerations, other than fear of criticism from this source, however, entered into the equation, not the least being an earnest desire on the part of all concerned to conserve and recover every available ton of coal from the several mines, as it is an undisputed fact that coal in place constitutes the principal asset of most coal companies.

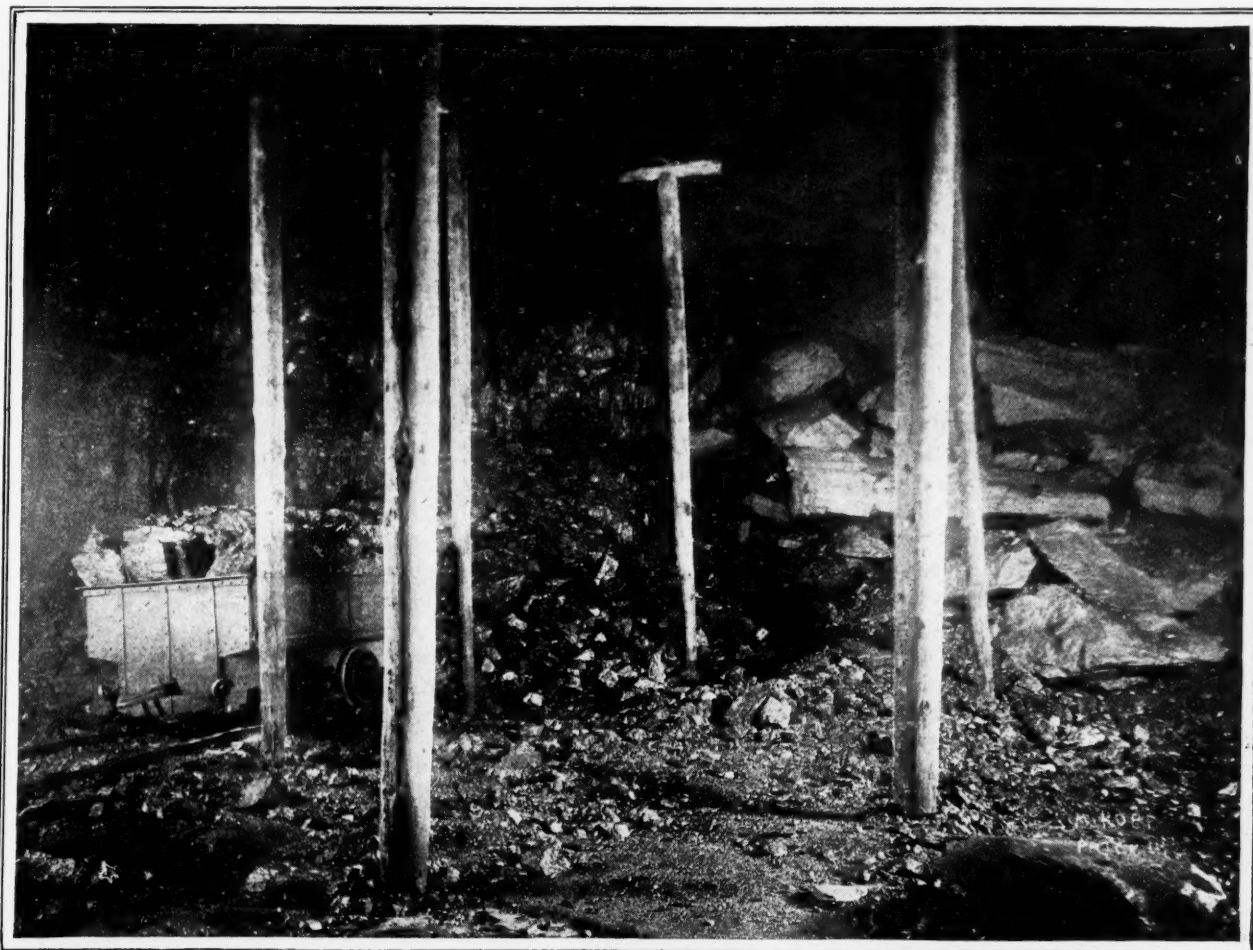
A statement of physical and other conditions existing in this field will be given before attempting description of the method of pillar extraction.

The coal in the mines under discussion ranges in thickness from 7 to 12 ft. in the Hiawatha No. 1 mine;

dense, and breaks with a distinct conchoidal fracture. The bed is clean throughout.

Overburden is composed of alternating layers of sandstone and shale, the immediate roof being a massive sandstone about 125 ft. in thickness. The accompanying chart plotted from drill-hole records shows several hundred feet of strata.

The average dip of the coal floor is about 3 per cent. Entries are driven on sights slightly to the raise. Rooms are driven on sights at an angle of 45 deg. to the strike. Room entries are driven 12 ft. wide. A 50- to 60-ft. chain pillar, with crosscuts spaced 125 ft. apart, is maintained between main and back entries. Rooms are driven 22 ft. wide with a 50-ft. pillar. Room crosscuts are spaced 100 ft. and driven on sights. A barrier pillar, ranging from 100 to 150 ft. thick, accord-



EXTRACTION OF COAL 23 FT. HIGH IN BLACK HAWK MINE

14 ft. in the Hiawatha No. 2; 22 to 23 ft. in the Black Hawk and 18 to 30 ft. in the Mohrland. The cover rises rapidly from the outcrop to a height of 1500 to 2500 feet.

The bed worked is the same in all mines and is known as the Castle Gate seam. The coal is bituminous and makes a fine steam and domestic fuel. The formation was for years classed as Laramie-Cretaceous, but recently it has been reclassified as Mesa Verde; proof has not been conclusive, however.

Coal in the Black Hawk and Mohrland mines is massive in structure, seldom showing either vertical or horizontal cleavage. It is extremely hard and

ing to cover, is provided between the tops of rooms and the back entry of the level above.

The coal is all machine-cut to a depth of 6 ft. and is shot to a 6-ft. height in the first bench. Five to seven holes, charged with an average of $2\frac{1}{2}$ sticks of $1\frac{1}{2}$ -in. ammonium nitrate permissible powder, are required to break the face down. The practice is to keep 30 to 40 ft. of second bench back at all times, not only to insure a more stable supply of coal for the loader, but to make possible the use of shorter jack pipes with the mining machines. The second bench is shot 5 to 6 ft. in thickness, making the ultimate height of room 11 to 12 ft. The balance of the top

coal ranging from 8 to 15 ft. or more, is brought back immediately in advance of the pillar line.

When it was decided to commence pillar operations in earnest at these plants, various authorities and oracles were consulted with a view to discovering a system of working which would give a maximum recovery with a minimum of risk. No precedents were discovered, however, as all of the attempts previously made by others, under anything like similar conditions, had either been disastrous failures or had been abandoned before definite conclusions could be drawn. After due deliberation and discussion at monthly meetings of superintendents and foremen, it was therefore decided that, inasmuch as no new method was forthcoming, it would be best to adapt standard methods to the conditions existing.

A section in each mine was selected for trial where a squeeze, if started, would do the least harm. In the Hiawatha and Black Hawk mines upper levels near the outcrop were chosen, but in the Mohrland mine an entry in about the center of the workings, under a cover ranging from 1700 to 2300 ft. was selected, as it was surrounded on two sides by a sandstone deposit 50 to 100 ft. wide, caused by an old stream channel, and it was believed that this would act as an ample barrier to protect newer workings.

It was decided to establish the break line at an angle of 45 deg. to the entry. As a preliminary, the engineering force drew a series of parallel lines at 50-ft. intervals conforming to the proposed break line. Wherever one of these lines intersected a pillar, a vertical line was painted, and the lines were numbered consecutively from the point of commencement outward. Each line carried its number wherever encountered, hence the mine foreman, inspectors and others were able to tell at a glance the relationship of any retreating pillar face to that of all others, simply by noting the nearest numbered line.

Maps of pillar workings are extended monthly and the mine foreman is furnished a blueprint of the pillar section on a larger scale than that used for the regular pocket map. The engineers note on this print the exact relationship of retreating faces to the uniform break line. Any places too far in advance are stopped, and those lagging behind are crowded until they catch up.

In first starting out on this system things moved rather slowly, due to the fact that only one pillar could be started. However, by working two shifts on the first pillar, it was soon brought down far enough to permit starting the second one, and so on until the break line extended from the back entry of the level above to the chain pillar of the entry upon which the pillars were working. It was not considered advisable to carry a continuous break line through the pillars on two entries, hence when extraction was commenced on the second level an offset of 100 ft. was maintained between the two break lines. Rooms from the lower level are driven through the barrier pillar one at a time as the line of retreat above permits. This always insures a large block

of solid coal which would act as a protection should a squeeze start in either of the sections. Work is so planned that the top level will be finishing at about the time the third level is commencing, so that no more than two or three entries will be worked at the same time. Pillars were started away by machine, but after a small area had been opened up, it was deemed too dangerous to undermine the coal either by hand or machine, so, inasmuch as all holes are required to be drilled free on two sides, and are inspected and accepted by shotfirers before detonators are issued, it was decided to dispense with undercutting in pillar workings entirely.

Top coal is kept about 20 or 30 ft. in advance of the pillar faces. Props are set under the lip of top coal in order to prevent falls of coal which may have been loosened by shots or by strain. Props 6 in. or over at the small end are used and are cut from the company's holdings near the mines. No effort is made to set break rows, the timber being used simply for its warning effect when the roof is working for a break.

Quite a good deal of timber is salvaged and used a second time, but the height is so great that a slight subsidence breaks props and renders them valueless, except for ties or cap pieces.

Whenever the roof breaks, pillar faces are almost invariably lost. Sufficient warning is usually given to permit the loading of loose coal and the removal of track and other material to a safe place. Caves seldom ever extend beyond the end of the pillar. Places usually settle within 36 to 48 hours, so that work can be resumed.

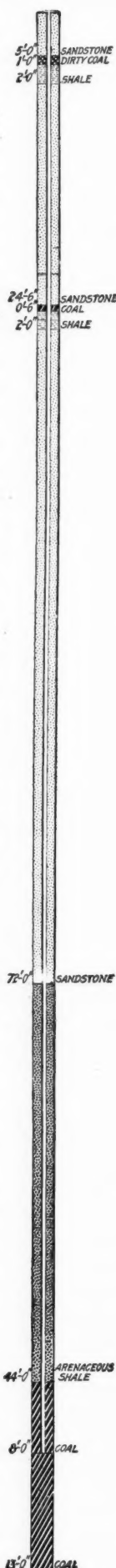
If pillar faces are lost, it is necessary to drive crosscuts, starting about 10 ft. from the cave before continuing retreat. Small stumps remaining after completion of crosscuts are robbed of as much coal as possible, and if it is unsafe to remove all the coal, stumps are shot in order to prevent hanging of the roof. In many instances practically the entire stump is recovered, and up to date the extraction has been very satisfactory.

In one area of something over 10 acres, in coal running as high as 30 ft. in thickness in spots, with an average thickness of about 24 ft., and with cover of about 2000 ft., the extraction has been better than 90 per cent.

In another area of about the same acreage, with thinner coal and less cover, the extraction has been about 85 per cent., the loss being occasioned by the necessity of leaving up some top coal to support a friable roof.

In a third area of about four acres, with coal 20 ft. in thickness, and cover increasing from the outcrop to a height of 800 ft., the extraction has been as near perfect as possible.

In first starting pillars away some uneasiness was felt with regard to the possible action of the roof. Considerable areas were extracted clean, but the roof showed no tendency to cave. Props were either pulled or shot, but still no action took place. Finally, after the break line developed a length of about 200 ft. and the space



worked out became 150 ft. wide, a preliminary cave, ranging from 5 to 10 ft. in thickness, occurred. No further caving of moment took place until the open area assumed proportions of approximately 250 by 200 ft. A cave then occurred, running up to 75 to 90 ft. Practically the same experience was had in all three areas.

In the Mohrland mine the roof arched above the cave, and large openings remained between cave and dome. The roof being massive sandstone, the fragments of rock were extremely large and mostly angular. After this cave, the roof continued to break at intervals of about 50 ft., the caves going higher each time, until finally at a height of about 90 ft. on the cave progress of the inspection party was blocked, and it appeared from rays of an electric hand lamp that the cave was completely choked in about 50 ft. additional. It is probable that caving extended much higher than this, but as very little weight has been shown on pillars it is hoped that the void has been closed.

In the Black Hawk mine a second cave broke through to the surface in about 100 ft., the crevice being about 50 ft. wide by 200 ft. long. Miners worked for several weeks by daylight. The impression gathered when first entering this area was somewhat weird, to say the least.

The roof over the pillar section of the Hiawatha mine is composed of shale, with a small seam of coal (resulting from a split of main seam) about 20 ft. above. Caved material is composed of finely broken shale and coal, and apparently the caves choke completely, as no undue pressure has been noted on the pillars.

In this method of mining absolute adherence to plan is required, and while there is no certainty that trouble will not develop in the future, it is believed that whatever success has been attained in the past has been due to this strict adherence. A uniform break line insures even distribution of load over all pillars and prevents the peaking of roof load on one or more places, as is the case where the break line is jagged and irregular.

Belgian Coal and Coke Industry in the War

MY ATTENTION was recently directed to Mr. Shurick's article in your issue of June 16, under the heading "The Foreign Coal Markets." I want to offer some remarks concerning the few lines devoted to Belgium in that article. Being unknown to you, I also want to tell you how it is that I am acquainted with conditions in the Belgian coal fields during the German occupation.

I do not want my name to appear in print for the good reason that I have left behind me in Belgium parents and relatives who would certainly be made to suffer for my revealing conditions under which Belgian industries are being systematically crushed and destroyed by the Germans. When the apostles of Kultur are unable to reach a party who has offended them, they never fail to make his friends and relatives suffer in his place, after having first destroyed what property the offending party may have in Belgium or in any other hapless country under German rule.

THE WRITER INTRODUCES HIMSELF

This being understood, I will introduce myself. I am a byproduct coke-oven specialist, having followed that line of occupation for the last 29 years. I have spent all those years in designing, erecting and operating byproduct plants in Belgium, France, Great Britain and Italy. My residence was in Mons, my business office in Brussels.

There is not a coal or coke plant in Belgium or northern France that is unknown to me. With all the more important, I am thoroughly familiar. I am on friendly terms with 90 per cent. of the chiefs of industries of those countries. With the other 10 per cent. I am at least on speaking terms. At some time or other I have been consulted by nearly all of them. As far as permitted by the restrictions put by the enemy on the free moving of Belgian engineers about the country, I remained in close touch with Belgian industry and its managers until last August, when I succeeded in escaping two full years after the battle of Mons.

During the years that immediately preceded the war, Belgium produced in round figures 24,000,000 metric tons of coal a year. About 1,350,000 tons of this was coked, yielding a trifle more than 1,000,000 tons of commercial coke, including breeze (or braise), sold for domestic use. All coke was of course byproduct coke, as none other has been made in Belgium since 1892 or 1893.

Belgium was a pioneer in the byproduct industry. The oldest byproduct company now in existence is the Société Anonyme du Charbonnage des Produits, at Flénu, Belgium, which was incorporated in 1856 for the mining of coal and the manufacture of byproducts. This company may have become better known abroad as a coal company than a byproduct concern, but this was due to the extraordinarily fine natural condition of its coal deposits, which enabled the company to pay big dividends earned in mining and selling coal while weathering the difficult times it had in developing the byproduct end of its business. But no matter how hard the times, the Produits company never ceased for a single day, since 1856, to make byproducts; and the first aniline colors ever put on the market were made at Flénu by this company at a time when its coke and byproduct department was managed by the noted Belgian chemist Neyrincks.

With the advent of the Coppée vertical-flue coke oven, the Produits company became quite a factor in the byproduct industry. That was about 1870, at a time when Germany had only beehive coke ovens and when all coke made in Belgium was produced in retort ovens of the original Coppée style. Not only was Germany behind Belgium in getting rid of its beehive ovens, but even to this day there is not in Germany a single coke oven which is not of the vertical-flue kind first invented by Coppée, a Belgian, or the horizontal-flue style developed by Solvay and Semet, the former a Belgian, the latter a Frenchman, both living today. There are many people in this country, even among those in the byproduct industry, who believe that the byproduct oven

is of German origin and development. To this day, Belgian coke ovens have always kept at least one step ahead of all others.

At the rate mentioned in Mr. Shurick's article, Belgium in the year 1916 produced roughly 17,000,000 tons. As a matter of fact, the output cannot have been one-half that figure.¹ The tonnage mined up to the time I left the country—that is, during the first eight months, minus two weeks, was less than 4,000,000 tons. The official figure as given out at Brussels for the first six months of 1916 was less than 3,000,000 tons. Having made my escape from the country with only the clothes I had on my back, without either baggage or a scrap of paper, I am unable to give figures except from memory, but I am perfectly sure the half-yearly output in 1916 was not quite 3,000,000 tons. That is 5,500,000 tons less than reported in the article written by Mr. Shurick. How could it have been otherwise, when the mines worked only, on the average, 1½ days a week?

BELGIAN MINERS CHEERFULLY CREMATED ENEMY

The output would have been even less, had it not been for the very large amount of coal used in coke ovens and gas producers to make gas for the blast furnaces and openhearth furnaces in which were cremated the countless thousands of German corpses brought from the Verdun slaughter that lasted nearly five months. That was the only work our miners ever did cheerfully for the enemy—that is, to go into the mines and dig coal to burn the dead Germans.

It was not because there was no work for them to do that the miners did not work. It was because they did not want to produce coal that would be used either to keep the enemy's gun factories running or to take the place of coal which the Germans had sold to neutral countries in exchange for provisions, clothing and supplies of which the German armies were in such great need. Many of our miners literally allowed themselves to starve to death rather than do a stroke of work that would be useful to the enemy.

I am not talking by hearsay, as I have seen these things myself. My close association with all those people for nearly 30 years had made me one of them; consequently, I suffered with them, and I know whereof I speak. The deportations of Belgians to Germany (which, by the way, commenced long before reported in America) were made to break the men's refusal to work for their oppressors. It is not necessary to be a profoundly wise economist to understand that the Germans thought that, by removing the Belgians from their homes and the zones in which the American Relief Commission was allowed to operate, the Belgians would be willing to work at anything to save themselves from starvation. Numerous notices were posted notifying the workmen that they would be sent to the German mines if they persisted in staying away from the Belgian mines. The Germans thought they would thus break what they called the "bad spirit" of those miners.

The Germans, however, were mistaken in their calculations, as the bad spirit was not broken. It is a matter of record that only 2 per cent. of the men sent to the mines of Westphalia consented to do some work, and

very little at that. How many of those unfortunates died of hunger in a foreign land will be known some day; I am sure the figures will be appalling.

As to the coke output, counting the ovens that kept working more or less spasmodically in 1916, the output could not have been more than a paltry 85,000 or 90,000 tons. Practically all the coke plants which thus remained at work were operated by German labor, or rather by all kinds of men of all ages and descriptions, brought from all kinds of countries, some of them as far as Syria and Sinai Peninsula. But even with the few coke ovens that were kept going, they could not be charged regularly, due to the scarcity of coal. It happened (and this was the rule, not the exception) that ovens which ought to have been pushed once a day were pushed only, on the average, once a week.

Since there were more coke ovens in the country than the enemy could keep in operation and since all the Belgian coke ovens are byproduct ovens, of what use would it have been to the Germans to build new byproduct ovens? I know for a fact that not a new oven was built in either Belgium or the invaded part of France after the Germans entered these countries.

Several plants were nearing completion in the Province of Hainaut when the war began. We thought the war would not last over the winter and kept on working to finish the installations. But as soon as it became evident that the war would be long, we stopped all work on these ovens. The enemy took possession of them, announcing his intention to complete them. All they did, however, was to search for the plans of the ovens, which were of a new design. Not finding the plans, they tore the constructions down, brick by brick, measuring everything with the greatest care and reconstructing the ovens on paper.

The plans thus made were sent to the competent authorities in the "Vaterland"; and where the several expensive and nearly completed installations had previously stood, there remained only piles of useless materials. I say "useless," because besides the oven's plans, all the special and expensive brick shapes had been also shipped to the land of Kultur. News of a most reliable character, emanating from a competent authority who succeeded in escaping from the country recently, has reached me, according to which the nearly new batteries of ovens at Hourpes, Genly, Strépy and Bracquignies have been also razed to the ground, all serviceable material being sent to Westphalia. This was done during the winter and early spring of this year.

PROVINCE OF LIMBURG SUFFERER FROM WAR

As will be seen, this does not tally with the information (evidently supplied by the Teutonic propaganda) that the Germans have constructed byproduct ovens in the hapless country of Belgium. Mr. Shurick mentions² the Province of Limburg as the location of these new ovens of German construction. As a matter of fact, the Limburg Province has probably suffered more, comparatively, from German barbarity than any other part of Belgium. The Coppée family—that is, the descendants of the coke-oven inventor—have for a long time contemplated the erection of large byproduct

¹The figures mentioned in Mr. Shurick's article were expressly designated as "emanating from German sources." They were, further, published broadcast in British technical and trade journals, by which they were apparently accepted as authentic.—Editor.

²These data were obtained directly from the British technical papers, by which they were apparently accepted as authentic.—Editor.

plants in Limburg. It is probable that, had it not been for the war, they would have commenced construction about the end of the present year, in order to have the plants completed early in the spring of 1919.

I have several times discussed the matter with Evence Coppée, the present head of the Coppée family. The idea was to have the ovens ready for the time when the first coal from the new coal field of Limburg would be available. There is a vast new coal basin now in the process of development in Limburg, but the Germans have had nothing to do with this development except possibly to retard it and even to destroy much of what had been accomplished by the ceaseless labor of nearly 20 years. Mine shafts, some of which had reached depths of more than 2000 ft., were being sunk through quicksands by the freezing process. Only a few of the shafts had passed the quicksands, some of them having safely traversed nearly 700 ft. of this dangerous ground.

During the early summer of 1916, the men at all the shafts were corralled by German soldiers at the same time, on the same day, at all the shafts scattered in an area of 31 by 18 miles. Stokers, enginemen, electricians, blacksmiths, carpenters, were packed into waiting trains and sent to Germany without being given time to pick up their dinner buckets. They were told they would not need the pails any more. The refrigerating machines have not made a revolution since then, and all shafts that were not safely past the quicksands have been destroyed forever. Two of these shafts, the property of the Coppée family, had been commenced in March, 1900; they had cost millions and were expected to be finished for coal hoisting at the beginning of 1919. They also had four other shafts that had just reached a depth of 1730 ft. where the head of the quicksand formation was encountered, when the war began. Evence Coppée decided to wait better times to sink these shafts.

As to the six new mines opened during the German régime in the Province of Hainaut, this is another story of the same kind as that of the Limburg coal-field development. It does not take as long to sink a shaft in Hainaut as it does in Limburg. The record for fast sinking of a shaft in Hainaut is held by the old Belle et Bonne Co., which sank its No. 28 shaft to a depth of 1900 ft. in 5½ years. The favorable conditions encountered at this shaft will probably never present themselves again anywhere else in that region.

The six new mines that, evidently, form the basis of the German story are well known to all Belgian mining men. Work on them was started in 1909 (one shaft), in 1910 (three shafts) and 1912 (two shafts). As the shafts were not producing mines when the war broke out, no coal could be taken out of them; and consequently, the miners had no scruples about working in these shafts. Work went on uninterruptedly until the German authorities (in December, 1915, or January, 1916) served notice on the different companies owning the shafts that, unless work could be prosecuted uninterruptedly in their producing shafts, the shafts that were sinking would be taken possession of by the military authorities. The miners refused to mine coal for the benefit of their masters, and the six shafts have been stopped ever since. All the machinery was dismantled and shipped to the land beyond the Rhine. The shafts in question are at Monceau-Fontaine, Sacré Madame, Anderlues and Trazegnies.

Increased Value of Coal in 1916

Figures compiled by C. E. Leshner, of the United States Geological Survey, Department of the Interior, show that the total value at the mines of the coal produced in 1916 was \$867,125,638. Bituminous coal and lignite were valued at \$665,116,077, an average of \$1.32 per net ton, compared with \$1.13 per ton in 1915, an increase of 19c., or less than 17 per cent. Pennsylvania anthracite was valued at \$202,009,561, an average of \$2.30 per net ton.

The average value per net ton at the mines (exclusive of selling expense and stock shrinkage) of all anthracite shipped in 1916 of chestnut size was \$3.51; of stove, \$3.40; and of egg, \$3.32. The average value of pea size was \$2.10. The average values of the smaller sizes ranged from 67c. per net ton for "boiler" to \$1.31 for buckwheat No. 1. The table below gives the average value per net ton at the mines from 1910 to 1916:

State	1910	1911	1912	1913	1914	1915	1916	Advance in 1916
Alabama.....	\$1.26	\$1.27	\$1.29	\$1.31	\$1.34	\$1.28	\$1.37	\$0.09
Arkansas.....	1.56	1.61	1.71	1.76	1.72	1.79	1.92	.13
Colorado.....	1.42	1.45	1.49	1.52	1.66	1.58	1.62	.04
Illinois.....	1.14	1.11	1.17	1.14	1.12	1.10	1.25	.15
Indiana.....	1.13	1.08	1.14	1.11	1.10	1.10	1.27	.17
Iowa.....	1.75	1.73	1.80	1.79	1.79	1.78	1.86	.08
Kansas.....	1.61	1.53	1.62	1.67	1.64	1.66	1.78	.12
Kentucky.....	.99	.99	1.02	1.05	1.02	1.01	1.19	.18
Maryland.....	1.12	1.11	1.18	1.24	1.27	1.28	1.56	.28
Michigan.....	.91	1.78	1.99	.99	.99	2.05	2.25	.20
Missouri.....	1.79	1.72	1.76	1.73	1.73	1.73	1.91	.18
Montana.....	1.82	1.79	1.82	1.74	1.75	1.62	1.73	.11
New Mexico.....	1.39	1.44	1.42	1.46	1.61	1.44	1.47	.03
North Dakota.....	1.49	1.43	1.53	1.52	1.52	1.45	1.49	.04
Ohio.....	1.05	1.03	1.07	1.10	1.13	1.08	1.33	.25
Oklahoma.....	2.22	2.05	2.14	2.05	2.06	2.01	2.09	.08
Pennsylvania (bituminous)	1.02	1.01	1.03	1.11	1.07	1.06	1.30	.24
Tennessee.....	1.11	1.12	1.14	1.14	1.14	1.13	1.23	.10
Texas.....	1.67	1.66	1.67	1.77	1.69	1.65	1.56	a .09
Utah.....	1.68	1.69	1.67	1.65	1.59	1.58	1.62	.04
Virginia.....	.90	.91	.96	1.01	1.01	.98	1.06	.08
Washington.....	2.50	2.29	2.39	2.38	2.20	2.17	2.27	.10
West Virginia.....	.92	.90	.94	1.01	.99	.97	1.18	.21
Wyoming.....	1.55	1.56	1.58	1.56	1.55	1.46	1.55	.09
Total bituminous.....	\$1.12	\$1.11	\$1.15	\$1.18	\$1.17	\$1.13	\$1.32	\$0.19
Pennsylvania (anthracite)	1.90	1.94	2.11	2.13	2.07	2.07	2.30	.23

a Decline.



SOME CARS OF COAL JUST OUT OF THE MINE; STRAIGHT CREEK, BELL COUNTY, KENTUCKY

Mining Lessee's Royalty

BY A. L. H. STREET

Attorney-at-Law, Minneapolis, Minn.

A West Virginia coal and coke company requests information concerning court decisions bearing upon clauses in coal-mining leases giving the lessee the privilege in a succeeding year of mining free of royalty to make up a deficiency in production during a preceding year, where a minimum rental paid for the preceding year exceeds the value of the coal mined in that year, computed at the contract royalty rate.

First, it is well settled by court decisions that such clauses are to be interpreted according to their language, if that is not ambiguous and not self-contradictory. "The intention of the parties to every contract of this kind must determine their rights and remedies." (Pennsylvania Supreme Court, *Lehigh & Wilkes-Barre Coal Co. vs. Wright*, 35 Atlantic Reporter, 919. Indiana Supreme Court, *Vandalia Coal Co. vs. Underwood*, 101 Northeastern Reporter, 1047.) In other words, when a coal-mining lease is entered into, the parties are left free by the law to prescribe the conditions upon which the lessee is to be reimbursed for any excess of a minimum annual rental above the royalty value of coal produced for a given year, and if mutual understanding is clearly expressed on that point, the courts will give effect to it whether that provision favors the lessor or the lessee.

The few appellate court decisions bearing on the precise point apply this fundamental principle, and an examination of them shows that the courts in most, if not all, of the cases have followed the ordinary meaning of the language used in the leases passed upon.

The lease in the Indiana case cited provided for a minimum annual royalty and contained a clause to the effect that in case the royalties in any one year should not amount to that figure the excess of the yearly payment should be treated as advanced royalty and be deducted from any subsequent excess in another year. Under this language the Indiana Supreme Court decided that royalty payments in a given year in excess of the minimum rental could not be used to cover a deficiency in a subsequent year.

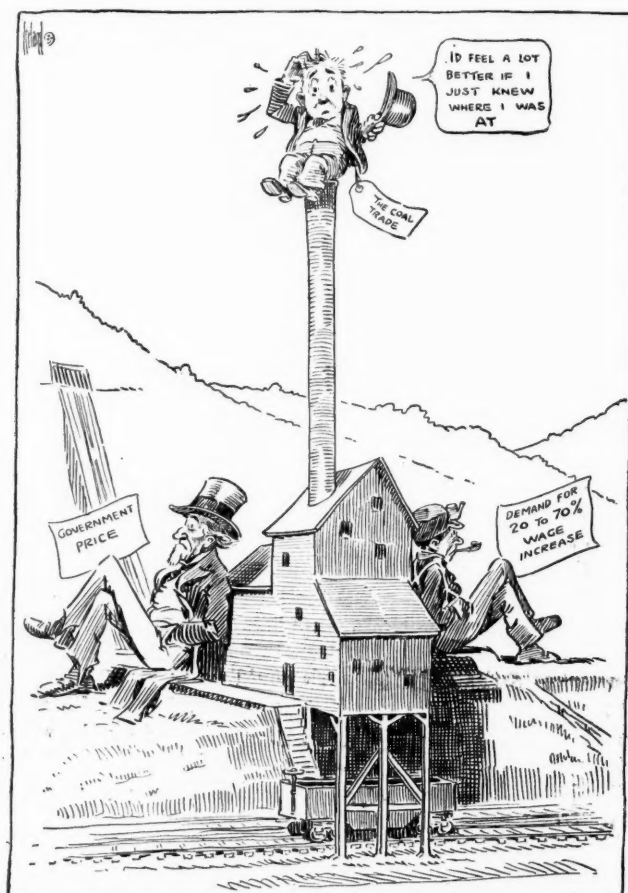
A contrary decision was announced by the New York Court of Appeals in *McIntyre vs. McIntyre Coal Co.*, 11 Northeastern Reporter, 645, but an examination of the provisions of the lease in that case shows that it was expressly contemplated by the language used that an excess in payments above the minimum for one year should be applied to a deficiency in a subsequent year.

An opinion showing the effect of using the term "advanced" royalties will be found in *Kissick vs. Bolton*, 112 Northeastern Reporter, 645, but an examination of the lessee agreed to pay certain amounts in each of the first two years, as "advanced royalties," in case production should not be commenced then. There was a guaranty that, commencing with the third year, the royalties should amount to at least \$400 annually. The Iowa Supreme Court held that the lease, construed as a whole, must be interpreted as entitling the lessee to have the payments for the first two years, when no coal was produced, applied to the first royalties actually earned, and not merely, as the lessor claimed, to the excess of earned royalties above the \$400 annual guaranty.

In the Pennsylvania case cited, the lease required payment of 25c. per ton for coal mined, with a minimum of \$4000 yearly, but provided that any deficiency might be made up in any succeeding year. After the lessees had been in possession several years, they claimed the right to mine the remaining coal in place without further payment, on the theory that full payment had been made for all coal under the land. But the Pennsylvania Supreme Court decided that the \$4000 must be paid every year the lessee remained in possession, subject to the right to recoup the excess of the \$4000 payment in any preceding year above the royalty value of coal mined that year. A contrary conclusion was reached, however, by the New York Court of Appeals in the New York case cited, where it was decided that where the amounts paid for coal mined exceeded the aggregate annual minimum rentals to be paid throughout the lease term of 20 years, there could be no further recovery against the lessee by way of minimum rental.

A Virginia lease was interpreted by the Supreme Court of Appeals, according to its clear language, as merely requiring an average annual production of 12,000 tons and not that minimum amount in every year. (*Oglesby's Executrix vs. Hughes*, 30 Southeastern Reporter, 439.)

And in *Render vs. McHenry Coal Co.*, 14 Southwestern Reporter, 678, the Kentucky Court of Appeals decided that, under a lease entitling the lessee to make up in any year deficiencies in other years, the lessee, having produced more than the minimum amount for several years, was entitled to be credited for the excess in subsequent years when there was no production.



—From "The Retail Coalman"

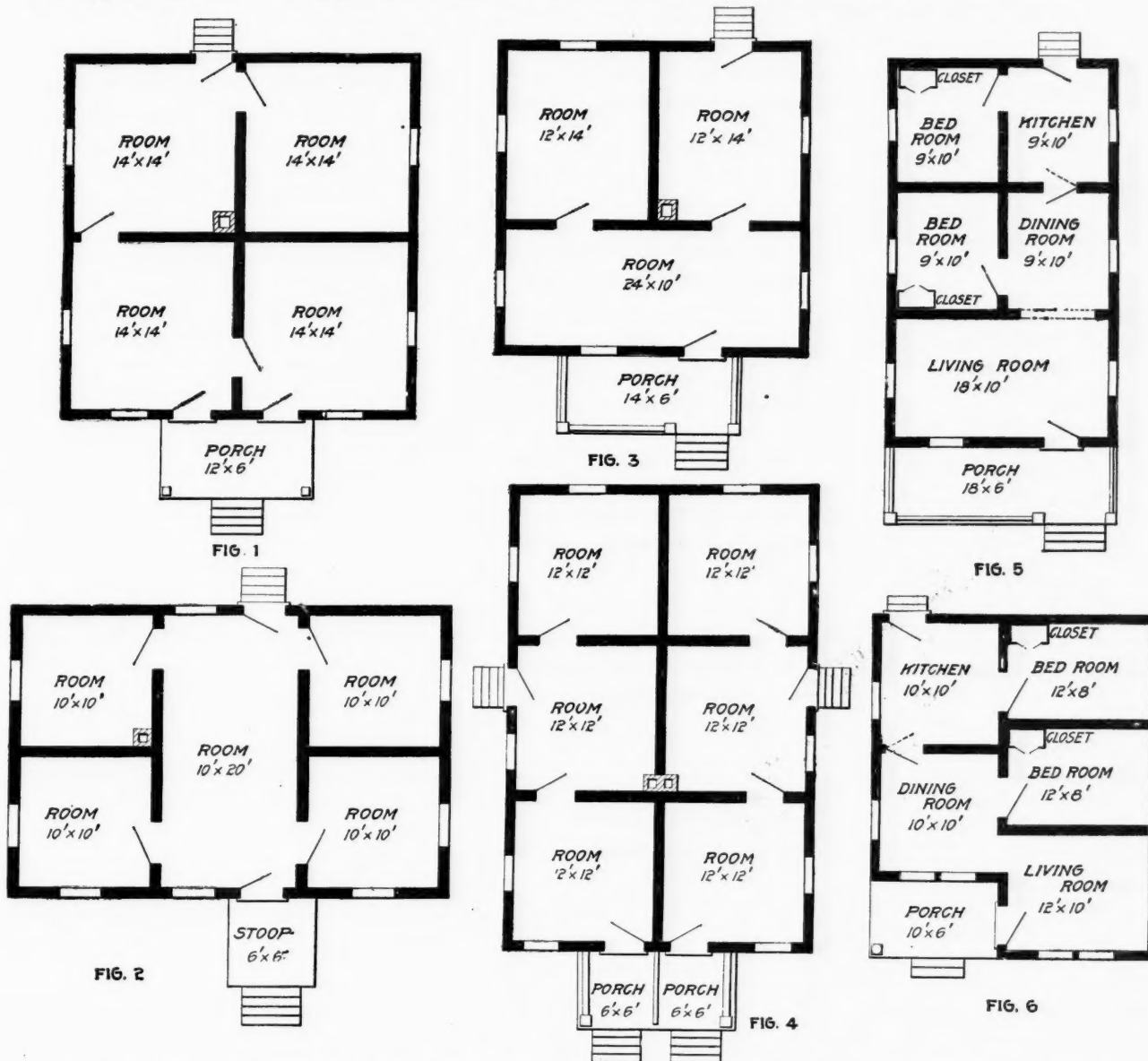
Houses for Mine Villages

By A. F. HUEBNER

WHEN war was declared in August, 1914, and business grew abnormally in the United States, manufacturers had to turn their attention toward housing conditions in order to hold their employees, and even at the present time inquiries for houses for industrial purposes are numerous.

When a manufacturer started to buy houses, he asked, "What type of house for my employees?" And now the

The question is purely a matter of design—a house that will satisfy and prove comfortable. And added to this are the questions: "How soon can this village be ready for occupancy?" and "What will it cost?" The proper plan for the workmen's house, of course, is a very important part of the project, and manufacturers and coal operators realize they must satisfy the tenants in order to secure results from the investment.



FIGS. 1 TO 6. FLOOR PLANS OF SEVERAL TYPES OF HOMES THAT HAVE PROVED SATISFACTORY IN MINE VILLAGES

coal operator, who is replacing his miners' village of shacks with homes, asks "What type of house is best adapted to the miner's family?"

Surely there is no difference in the family of the coal miner and that of the textile worker. Both have similar likes and dislikes in their home lives, and both need proper comfort and living space, according to the number in the family.

The investment also seems to puzzle a number of operators. Some employers think of employees' houses as an expense. This is a false impression. It is generally agreed that homes attract workmen of a reliable and steady type. But besides this value, which is of direct benefit to the employer, the investment is capable of earning from 10 to 15 per cent. yearly. Let us say, for example, that a house of four rooms costs complete

\$700. If the operator rents the house to the workman for \$6 a month, based on \$1.50 a room, he realizes \$72, or 10 per cent. on his money. This rent of \$6 is very low. The coal operator would have little trouble in attracting high-class employees to his mine if he could offer a house of four good-sized rooms at that rental.

If the house rented for \$8 a month, or \$2 for each room, it would bring \$96 a year, allowing practically 13 per cent. The renting plan has been found successful in the coal fields. However, another plan that seems

to be popular is the one in which the houses are sold to the workmen on the installment basis. In this plan the workman is allowed to make a small payment down and pay the balance like rent. The longer he is in the employ of the employer, the larger his equity becomes, which is an inducement for him to remain in the locality.

Of course, the provision that the house can only be rented or owned by the employee of the coal operator is made part of the contract, and should the employee



FIG. 7. A COMPACT HOUSE WITH GENEROUS PORCH



FIG. 8. A SHINGLED HOUSE WITH FIVE ROOMS



FIGS. 9 AND 10. HOUSES SUITED FOR USE OF SUPERINTENDENTS AND MINE FOREMEN



FIG. 12. ONE OF THE DUPONT INDUSTRIAL CITIES WITH A CHARACTER OF ITS OWN. IT LOOKS

quit his position the house is turned over to the original owner.

Many types of houses have found general favor in the industrial field, but there are a few which have an ideal arrangement that can be adapted to most any locality. The plan illustrated in Fig. 1, a four-room house, has appealed to a great many coal operators. It is convenient in arrangement, and the 14 x 14-ft. rooms are larger than are found in the average house in mine localities. As the rooms are large, it is possible to use the rear room opening on the back steps for a kitchen and dining room; the one at the front can be used for living-room purposes, while the other room at the rear serves as a bedroom. The front room opposite the living room can be rented to a boarder when the family occupying the balance of the house is small, and in this way bring extra revenue to the occupant. This house has been erected complete, ready for occupancy, by one operator at a complete cost of \$709.

Another plan that has proved exceptionally popular is the one shown in Fig. 2. This plan has met with success in sales to individual home builders. It was cataloged by the Aladdin Co. of Bay City, Mich., for 13 years, and each year proved to be the leader in the low-cost homes division. It affords the occupants a large living room and four other rooms. In mining localities the room in the center is used for cooking, while the front part of the room is utilized as a living room. The size easily permits this and allows four other rooms for sleeping quarters. It is readily constructed, and one coal operator completed it for a trifle less than \$640.

Where a smaller house is desired, the plan shown in Fig. 3 attracts favorable attention. The large living room across the front of the house assures plenty of comfort for the miner's family, with two rooms in the rear, one for combination kitchen and dining room, the other for sleeping room, making a very compact home. The sleeping room, which undoubtedly would be at the rear and left of the house, is large enough to accommodate two double beds. This house should be erected for less than \$625.

While the duplex, or two-family house, is not in general favor in some localities, it has proved to be advantageous in others where space is limited. The type shown in Fig. 4 is now in use in several mining communities. Each family has a separate porch and side entrance to a home of three large rooms, each well lighted and ventilated. The house constructed represents an investment of practically \$825, and renting at

\$9 a month, or \$4.50 for each side, would bring an annual return of \$108.

The plan shown in Fig. 5 is another type of house that has found favor with the home builder himself for the past 13 years. That is why it can be recommended to the mine operator, as the home builder has selected it himself and made it his home. It represents, when completed, an investment of possibly \$645 and affords five rooms. Fig. 7 shows an exterior view of this house. Another home that can be recommended to satisfy the



FIG. 11. IDEAL HOUSE FOR ONE OF OFFICE FORCE

occupant is the plan given in Fig. 6. Of course, this house is a trifle more elaborate than the others. The building, when completed, represents an investment close to \$700. Fig. 8 is an illustration of a completed house of this type.

Where the better-than-usual plan is desired for superintendents or foremen, the houses illustrated in Figs. 9, 10 and 11 have proved attractive. Each house has plenty of space and the family can live in absolute comfort. Besides, each has attractive lines which will appeal to the eye of the occupant.

Another point that might be of advantage for any operator to consider is to avoid erecting a number of houses of the same type. This feature has proved detrimental to the success of many projects. It robs the occupants of the individuality they desire so much, and while it is the argument of many that houses of the same type erected in large numbers can be built much more economically, it has a telling effect on the success of the plan.



LIKE A CITY OF INDIVIDUAL HOMES WHERE HEALTHY IDEALS HAVE A CHANCE TO GROW

The question of cost must not be given much consideration. While labor is scarce, skilled labor is still harder to secure. That is where the readi-cut system of construction meets the home builder halfway, as it is not necessary to employ skilled carpenters in the work of erecting readi-cut homes. As the material is all cut to fit, and erection plans show every step in construction, ordinary labor makes excellent progress building this type of house, and at a greatly reduced cost.

The scientific feature of the readi-cut system is also of value to anyone building homes, as it saves a great deal of labor on the project. Sawing is unnecessary. This, too, eliminates the waste of material.

In order to complete the project in the shortest possible time, it is necessary that all deliveries be made with as much dispatch as possible, and as the readi-cut house comes complete—paint, nails, glass, etc., included—this assures the operator that it will be unnecessary to hold up the finishing work of the house on account of slow deliveries.

Since the period of the war, it is estimated that over 500 industrial villages have been erected, or are now in process of erection, which means that the coal operator must turn to more satisfactory housing conditions to retain his full quota of workmen, or the mine workers will leave to accept work where conditions are better.

Mining Engineers Meet in the Middle West—I

The Most Successful Summer Meeting of the American Institute of Mining Engineers Ever Held Was the Recent One at St. Louis and at Points in the Middle West

By R. DAWSON HALL

THE 115th meeting of the American Institute of Mining Engineers which assembled at the Planters Hotel, St. Louis, Mo., Oct. 8, was more numerously attended than any that had preceded it. More convenient than most meeting places, appealing to men in all the three principal branches of mining—coal, metal and well engineering—and following the exceedingly successful Arizona meet of the year before, it made much promise of success, a promise that it far more than fulfilled. The coal men represented were, however, not so numerous as they were representative and distinguished.

It is hard to speak too strongly about the generosity of the entertainment afforded by the people of the Middle West to the American Institute of Mining Engineers, spoiled as the members of that organization have always been by the hospitality of their hosts. This year not only automobiles but even a special train from Tulsa to Oilton, not only banquets and luncheons but even breakfasts were provided, and in the Tulsa region the hosts could be heard complaining that they had not been allowed to entertain the all-devouring legion for yet another day.

Maps and booklets prepared at much expense for the occasion were distributed freely, and it was never forgotten that the object of the excursion was serious and that the visitors were avid for information about the sections they were visiting.

COAL MEN RECEIVED MERITED CONSIDERATION

To the coal men was awarded a fair consideration on the program—a session at St. Louis, a visit to the Laclede Gaslight Co.'s coke plant, a trip to two up-to-date mines at Nokomis, Ill., and a close view of the coal strip pits in the Kansas field.

At the St. Louis session Carl Scholz presided. P. B. Lieberman's address on the "Effect of Anti-Friction Bearings on the Haulage of a Coal Mine" was first presented. Though a discussion arose in which Messrs. Lieberman, Ede, Jorgensen, Clagett and Mooney took part, no remarks were made which need recording in this brief summary.

F. S. Peabody's paper on "Coal Wastage," however, aroused animated discussion, probably because of its less scientific character. He advocated driving to the boundaries and working the mine by full retreating methods. R. V. Norris remarked that the paper had closer reference to Illinois conditions than to those obtaining in the West Virginia and Connellsville fields, where extractions were far more complete. He declared that men, exclusively engaged in mining for the profit that mining would afford, looked upon the problem of conservation from an entirely different angle to that which they would take if they both mined and transported the coal and sought a profit from both operations.

UNION OF RAILROAD AND MINE SAVES COAL

The association between railroads and coal companies in the anthracite region, bitterly as it had been assailed by the public, had, he said, always worked for conservation. Railroad companies were willing to lose a little on the coal if only they could secure by that means a more enduring tonnage. Coal too hard to secure or too thin to mine profitably at the prices received could be mined with advantage when the continuance of the return to the railroad was considered by the management.

One property he had evaluated was worth 60 per cent. more when figured as operated for maximum gross output than it was when figured for such a gross output as could be obtained when merely seeking a profit on the sale of coal. The property looked, in short, 60 per cent. more valuable as a railroad mining venture than purely as a mine-operating investment. The community of interests in the anthracite region is doing a great deal to make lower and thinner seams minable without loss.

Edwin Ludlow said that the extravagance of the past in the anthracite region was proving a godsend at the present time. Culm which had been wasted in earlier years was an important mainstay to the small-size market. The war had increased the demand for coal and especially for anthracite, which in places is now replacing bituminous fuel. The presence of these culm banks was peculiarly of advantage because the labor market has been so heavily depleted that the out-

put could not be brought to the needed level by the mining of coal. No. 4 buckwheat passing through a $\frac{1}{16}$ -in. screen and over a $\frac{3}{32}$ -in. screen is now briquetted and makes a desirable fuel.

H. H. Stoek said that much of the Illinois coal has been bought by the operator at from one-tenth of a cent to one cent per ton in the ground. It was hard to bring the operator to realize that at a heavy loss to himself he should save coal that cost him so little. Mr. Stoek stated that C. M. Young had been securing data regarding the waste of coal throughout the country, and his information placed the loss at about 50 per cent. Those who took a different view regarding the percentage of extraction frequently failed to make any allowance for coal left in the roof, which is quite an important item.

The large claims made for conservation in West Virginia and particularly in the Pocahontas region called T. H. Claggett to his feet. He said that the total recovery at the mines leased from the Pocahontas Coal and Coke Co. since 1883 ran only to between 86 and 87 per cent. Professor Sperr said that the large losses in coal mining were largely due to deficient engineering. He said that perfect alignment of rooms and fair pillars would have made larger extractions possible and commended Carl Scholz for the complete extractions at one mine made by a careful attention to this principle. But when Carl Scholz was asked the depth of the mine at which this success was attained, it was easily apparent from his answer that such an extraction in a union field under union restrictions was made possible rather by the small overburden than by the diligent sight setting and sight following of the mine forces.

F. F. Jorgensen, of the Gillespie Coal Co., said that at most Illinois mines complete extraction was not even desired. The operators had purchased their coal lands without acquiring the right to disturb the surface. Even where the surface is almost valueless and where more has been paid for the coal than the surface and coal would have sold for together in a normal market—even then the price which had to be paid for surface damage would bankrupt a company. The destruction by mining of an area far less than an acre had recently to be compensated for by the payment of \$1500. Until the tenure under which the coal was held was changed little progress would be made.

AT \$8 A TON IT WOULD PAY TO SAVE PYRITE

E. A. Holbrook called attention to the fact that the pyrite at the mines was being almost everywhere wasted. This mineral sells at \$8 per ton when 40 per cent. of sulphur is present. As pure pyrite runs 53 per cent., it is easy to see that the pyrite for which \$8 per ton is paid is not by any means without foreign ingredients.

H. H. Stoek presented his paper on "Steam-Shovel Mining of Bituminous Coal," and in the absence of E. C. Lee, H. M. Wilson presented the address on "Merit Rating of Coal Mines Under Workmen's Compensation." Neither of these addresses resulted in much discussion as neither contained anything controversial, but C. M. Young's paper, "The Coal Industry of Illinois," perhaps by chance, uncovered a rich vein of information and some argument.

Some one called on Carl Scholz to describe the new mine he is opening at Valier, Ill. This mine, though

approached by a shaft, is to put out 5000 to 6000 tons in 8 hours. The coal, which covers 15,000 acres, will measure in thickness from 8 ft. 10 in. to 12 ft. 6 in. Mr. Scholz said that about \$1,250,000 would be invested in its equipment. He could not help contrasting this large operation with his earliest mining venture, into which he put \$300.

The mine, it is believed, will be almost level. The coal is to be dumped in the mine and hoisted in a skip, which will hold two car loads. It will thus save the hoisting of much unnecessary dead weight. Cars such as are to be installed cost \$250 a piece. All the wheels are to be equipped with ball bearings. For haulage purposes, combination storage-battery and trolley locomotives will be used. The hoisting will be done by electricity. Mr. Scholz figures that the replacement of steam by electricity at the hoist will save \$30,000 a year. The electricity will be derived from the Central Illinois Supply Company.

TROLLEY POLE USED WITH BATTERY LOCOMOTIVES

In reply to questions, Mr. Scholz said that there was some gas in the mine and that the storage battery would furnish added security in meeting that difficulty. The trolley lines will be used wherever grades are encountered. The voltage maintained will be 250 volts. It is hard to forecast from boreholes the exact grade at which the coal may lay at any point.

Having a combination locomotive, however, will make it unnecessary to forecast the road levels and to provide equipment specifically for such places. H. M. Wilson said that the trolley locomotive could go wherever the superintendent had directed the suspension of wire, but the storage-battery locomotive could go anywhere and consequently might go where the management, owing to the presence of gas, would seek to forbid its entrance. It was therefore not under such complete control.

Mr. Jorgensen, talking of the mammoth new shaft which the Gillespie Coal Co. is opening, said that the question of using skips had arisen and the idea had been dismissed temporarily. Perhaps it might be revived later, but at present the management was disposed to favor raising the car on the cage with all the attendant loss of power due to the weight of the former.

(To be continued)

Coal Production in British India in 1916

Coal production in India in 1916 is reported as follows: Behar and Orissa, 10,762,222; Bengal, 4,992,376; Beluchistan, 42,163; Assam, 286,965; Central Provinces, 287,832; Northwest Frontier, 75; Punjab, 47,449; total, 16,419,082 gross tons. In addition 607,532 tons of lignite was produced at Singareni in Hyderabad, which is a native state.

The scarcity of tonnage prevented the shipments to Southern India from going to sea as most of them do, and a larger proportion than usual were sent by rail, increasing the cost. The railroads consume about half the coal mined. Other large consumers are the cotton mills in the Bombay and Madras Provinces and the gold mines of the Kolar field in Mysore.



Effort Made To Improve Distribution

Preferential movement of food and fuel will be ordered at an early date, in the opinion of Dr. H. A. Garfield, the fuel administrator. The past week saw the inauguration of an intensive effort at the Fuel Administration to improve the distribution of coal. The order issued to the Pennsylvania R.R. last week was expanded so as to include the Baltimore & Ohio. Orders covering other roads will be issued shortly. Fuel needed for the railway companies is to be obtained from mines in close proximity to the points where the fuel is to be used. This will avoid, it is believed, the holding of thousands of cars of coal under load and, by providing shorter hauls, will conserve cars and motive power and will avoid confiscation of coal.

An order confining coal cars to the coal trade is to be issued, an official announcement from the Fuel Administration says. In the order providing for the new plan of supplying railroad fuel the present method is described as resulting in loss of car efficiency; discrimination in car supply as between mines; disturbance of the mine labor factor; interference with the commercial coal distribution and interference with priority orders covering the distribution of other coal. The plan by which the mines now must furnish coal to the Baltimore & Ohio is outlined in the order as follows:

1. The percentage proportion which the aggregate requirement of the Baltimore & Ohio Railroad Co. and its operated companies bears to the capacity of all such mines, as rated by the railroad, shall be ascertained, and each mine which is furnishing such or a greater percentage under contract shall, during the life of the contract, continue so to produce and sell such coal at the contract price, and shall ship and distribute such coal regularly each week when the mine operates and ships, and so far as practicable in equal daily quantities regardless of other obligations.

2. The requirement not obtained from mines furnishing such or a greater percentage under the preceding paragraph 1 shall be requisitioned from the remaining mines at the going Government price, subject, however, to any revision which may be made retroactively effective, in the percentage proportion that such remaining coal requirement of the Baltimore & Ohio Railroad Co. and its operated companies bears to the capacity of such remaining mines, as rated by the railroad, subject, however, to the limitation that each mine under contract shall produce and sell not less than its contract obligation at the contract price, and shall ship and distribute all such coal regularly each week when the mine operates and ships, and so far as practicable in equal daily quantities, regardless of other obligations.

The railroad company, on its part, shall not later than Saturday of each week file with the Fuel Administrator a statement showing the tonnage of the coal which during the following week shall be requisitioned from each producer and mine upon the authority of this order; and shall post in the office of the car distributor for each district concerned a copy of the statement so filed with the Fuel Administrator; and shall give notice to each producer from whom coal

shall be requisitioned upon the authority of this order, showing the amount of coal which during the week following shall be requisitioned from each of such producer's mines.

One of the significant features of the order is that the shipments are given priority over all coal contracts. Accompanying the order are the names of nearly 500 lines affected by the order and the names of the operating companies.

Car Shortage Still Hampers Output

Production of bituminous coal increased 0.7 per cent. Anthracite shipments increased from 42,362 cars to 42,824 cars. Coke production in the Connellsville region dropped from 72.7 per cent. to 68.2 per cent. of full-time capacity. These figures, covering the week ended Oct. 13, were compiled by the Geological Survey and are compared with similar returns for the week preceding. The average production per working day, during the week ended Oct. 13, was 1,783,783 tons. This is but little in excess of the average daily production during the corresponding period of last year.

The principal factor limiting production continues to be unfilled car orders. The car situation improved decidedly in Indiana but remained unchanged in Pennsylvania and West Virginia. Labor troubles in Illinois reduced the percentage of production to capacity from 77 to 74.9. There was a corresponding improvement in the labor situation in Indiana and Ohio.

The week's production of beehive coke is estimated at 689,918 tons. The Connellsville production was 319,830 tons. The decrease over the previous week in the Connellsville production is due largely to a shortage of coke cars.

Will Prevent Hoarding of Coal

The statistical division of the Fuel Administration has been merged with that of the Geological Survey. The chief activity of the statistical division of the Fuel Administration has been the gathering of information as to contracts and free coal. This division, in addition, shortly will begin the collection from consumers of the following information: Quantity of coal on hand; kind of coal; monthly requirements; name of contractor; nature of product produced or manufactured; per cent. of production applying on Government contracts. This will supplement information along the same line from the larger consumers which had been collected previously by the Geological Survey.

The statistical force, which has been engaged at the Fuel Administration's building, has been assigned to

quarters with the Geological Survey. In order that information may be available immediately, the offices of L. A. Snead, in charge of distribution, have been connected by a private wire with those of C. E. Leshner, the geologist in charge of coal statistics for the Geological Survey. The statistical force will ascertain as quickly as possible the quantity of free coal available by individual companies. A considerable portion of this information already has been compiled.

The need for knowing the quantity of coal on hand at manufacturing plants, and held by others of the large consumers, has been emphasized by the discovery that large surpluses of coal are being carried by many consumers. At one plant a surplus of 205,000 tons was found on hand. This coal was sufficient to operate the plant for 12 months, and coal shipments still were being received. In this particular case the shipper was requested to suspend all consignments of coal to that plant. This policy will be pursued in each instance where the supply is found to be in excess of reasonable requirements. Such action, it is believed, will add materially to the free coal available. Every effort will be made to learn of cases where plants are adding unnecessarily to their surplus of coal, so that further shipments to them may be ordered suspended.

Nearly All State Administrators Appointed

In all there will be 51 state fuel administrators appointed. The list now is practically complete and is as follows:

Alabama—S. P. Kennedy, Anniston. Arizona—Will L. Clark, Jerome. California—Albert E. Schwabacher, San Francisco. Connecticut—Thomas W. Russell, Hartford. Delaware—Charles H. Ten Weeges, Wilmington. District of Columbia—John L. Weaver, Washington, D. C. Georgia—Dr. L. G. Hardman, Commerce. Idaho—Frank R. Gooding, Gooding. Illinois—John E. Williams, Streator. Indiana—Evans Woollen, Indianapolis. Iowa—Charles W. Webster, Waucoma. Kansas—Emerson Carey, Hutchinson. Louisiana—John G. O'Kelley, New Orleans. Maine—J. C. Hamlen, Portland. Massachusetts—J. J. Storrow, Boston. Michigan—William K. Prudden, Lansing. Minnesota—Judge John F. McGee, Minneapolis. Mississippi—C. L. Townes, Minter City. Montana—M. J. Swindlehurst, Helena. Nebraska—John L. Kennedy, Omaha. Nevada—E. H. Walker, Carson City. New England—J. J. Storrow, Boston. New Hampshire—Charles M. Floyd, Manchester. New York—Albert H. Wiggin, New York City. North Carolina—A. W. McAlister, Greensboro. North Dakota—I. P. Baker, Bismarck. Ohio—Homer H. Johnson, Lansing. Oklahoma—P. A. Norris, Ada. Oregon—Fred J. Holmes, La Grande. Pennsylvania—William Potter, Philadelphia. Rhode Island—George H. Holmes, Providence. Utah—W. W. Armstrong, Salt Lake City. Vermont—H. J. M. Jones, Montpelier. Washington—David Whitcomb, Seattle. Wisconsin—W. N. Fitzgerald, Madison.

No Coal Shortage in Chicago

Figures supplied to the United States Fuel Administration by the Federal Trade Commission disclose that 70 coal dealers in Chicago received between Apr. 1, 1917, and Oct. 1, 1917, 252,791 tons more of bituminous and anthracite coal than during the same period in 1916. The increase in anthracite alone was 79,706 tons.

The total amount of coal of all kinds delivered to these dealers in the six months period this year was 866,954, against 614,163 in the same period last year. Anthracite delivered amounted to 252,219 tons against 172,513 last year.

The stock of coal on hand in Chicago on Oct. 1, according to 63 dealers' reports to the Trade Commission, was 160,414 tons, while their total amount of unfilled orders was only for 50,062. The 63 dealers had on hand 192,916 tons on Oct. 1 last year. The 63 dealers had on hand on Oct. 1 of this year 57,844 tons of anthracite against 110,412 tons last year, but this year their unfilled orders on Oct. 1 amounted to only 13,579 tons. Their bituminous tonnage in yards was 49,647 against 33,648 last year.

Many firms did not report unfilled orders, but those that did do so did not report any large tonnage.

Retail Prices Going Down

Reports just received from state fuel administrators indicate in many sections a gratifying tendency downward in retail coal prices. In Harrisburg and Philadelphia, Penn., retail coal prices have been reduced. In New York City prices have recently been reduced by larger dealers from 10 to 40c. a ton on various grades, and other dealers are meeting these new prices. In Wilmington prices have changed somewhat lower. In Alabama, at Birmingham, Huntsville, Selma, Talladega, Sheffield, prices have been reduced from 25c. to \$1.25 per ton.

Miscellaneous Washington Notes

State fuel administrators appointed since Oct. 2 gathered in Washington, Friday to confer with Garfield.

* * *

To make arrangements for a further extension of the membership of the National Coal Association, a meeting of the directors was held here last week.

* * *

To meet the shortage of coal in Ohio and Michigan the Fuel Administration on Oct. 24 ordered that on Monday, Oct. 29, all soft-coal mines in Ohio and western Pennsylvania shall ship their entire output for the day to retail dealers in Michigan and Ohio.

* * *

Hereafter coal mined at Leavenworth, Kan., will be regarded as a Missouri product. Operators thereby get 60c. a ton extra. While the Home Riverside coal mine mouth is in Kansas, the workings run under the Missouri River. Four-fifths of the mine's product is taken from Missouri. The Fuel Administration announced the change on Oct. 24.

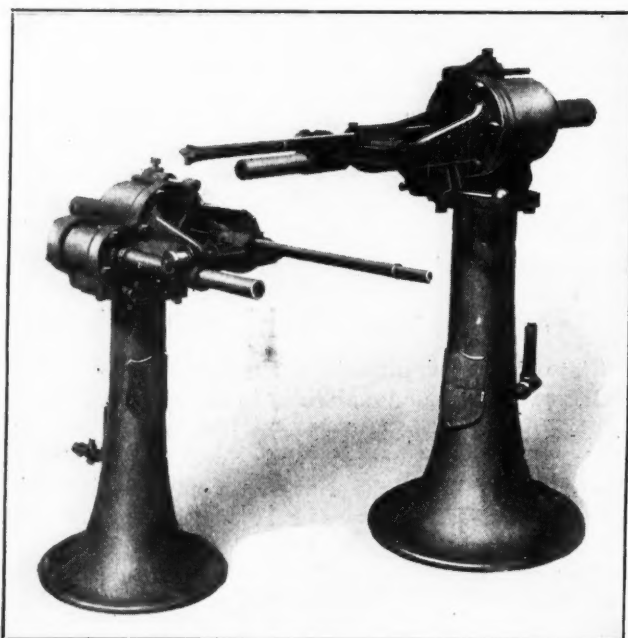
* * *

Improved facilities for handling coal at Hampton Roads will be installed as a result of the conference held in Washington Tuesday between L. A. Snead, in charge of distribution for the Fuel Administration, and the representatives of the Norfolk & Western, Chesapeake & Ohio and Virginia railways. Heavy shipments of coal for Navy use, the heavy movement to New England and the increased number of merchant vessels calling at Hampton Roads are overtaxing the pier facilities and delays to shipping are resulting. Arrangements also were made for supplying bunker coal in the stream. The Emergency Fleet Corporation, the New England coal interests and the Tidewater Coal Exchange were represented at the meeting.

New Apparatus and Equipment

Machine for Punching Out Bits and Shanks for Hollow Drills

The employment of modern hammer drills which use hollow drill steel, and air or water to expel the cuttings from the drill hole, is quite common in rock-drilling operations. Considerable carelessness is often shown in the matter of keeping the hole in the drill steel properly



LEYNER SHANK AND BIT PUNCH

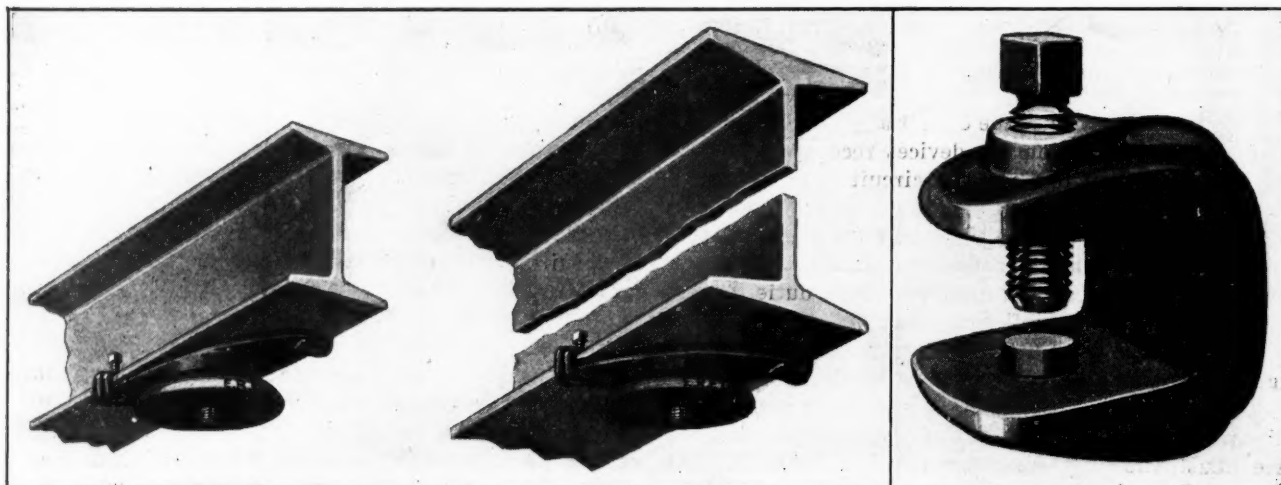
opened. Steels that are plugged, wholly or in part, prevent proper functioning of the drill; also, the drilling speed is retarded; the water tubes are bent or broken and time is lost in tinkering or while someone makes a trip to the shop for another drill steel or water tube.

To relieve this condition, the Ingersoll-Rand Co. has developed and is placing on the market, as an auxiliary to the Leyner sharpener, a new device—the Leyner shank and bit punch.

This machine is compact and simple in construction. It consists of a cast-iron pedestal, at the top of which are bolted the clamping and punching cylinders and apparatus. The drill steel is clamped by two jaws brought together by the movement of a pinion, which is operated by the clamping cylinder through the medium of a rack on the extended piston rod. The heat-treated steel punching pin is attached to the piston of a punch-operating cylinder, and in such manner that it may be removed readily should occasion require. The front head of the punch cylinder is provided with a clearance space around the punching pin so that on the extreme reverse stroke air is exhausted against the heated pin, effectually cooling it. The maximum stroke of the punch is 6 in. An adjustable stop for the drill steel is provided so as to regulate the distance to which it is desired to have the pin penetrate. The standard punching pin is $\frac{5}{16}$ in. in diameter for a distance of 2 in. from the end and $\frac{3}{16}$ in. for the remainder of its length.

The operation of the machine is controlled by a single lever moving in a T-slot. A downward movement clamps the steel and a further side movement operates the punch. The operation of the control lever locks the clamp jaws before the punch can be brought into action. In like manner the punching device must be in neutral position before the clamp jaws can be opened. This safety feature prevents action of the punch before the steel is firmly clamped and in perfect alignment.

All the moving parts of the machine are protected from dirt, grit and damage by tight-fitting covers; likewise the operator is guarded from injury. The Leyner shank and bit punch occupies a floor space of 22 x 44 in. and weighs 400 lb. A planking support is the only foundation needed.



I-BEAM CLAMP AND HANGER SUITABLE FOR VARYING FLANGE WIDTHS

New I-Beam Trolley Clamp

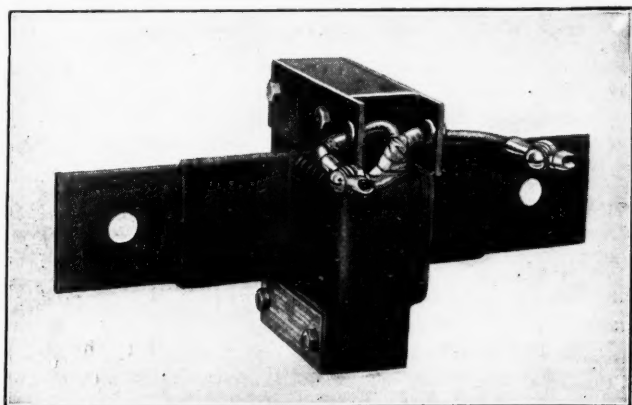
The Electric Railway Equipment Co., of Cincinnati, Ohio, has recently placed upon the market a type of I-beam clamp which is a radical departure from similar devices heretofore sold. These clamps are extremely simple and their wide range of application makes them particularly useful for coal-mine work, since there is no standard size of I-beam in use in the mines. Some operations employ small I-beams which have a face width of only 3 in. or less, while others use I-beams having flange faces as wide as 5 inches.

Hitherto devices of this kind have been nonadjustable, and it was necessary to specify the face width of the I-beam flange when ordering clamps. This feature has been overcome in the device illustrated on the bottom of the facing page, and the clamps may be used with equal facility on any size of I-beam used in the timbering of mine headings.

Cheaper Protection for Electrical Devices

Suppose something—a short-circuit for instance—should take place on the power line, and the machines in the generating station should happen to be unprotected. Serious damage would almost certainly result—lights might be out for hours rather than minutes—fans, motors, etc., would cease their operation.

But, of course, this rarely happens, for protection is usually adequate. Circuits are safeguarded automatic-



TRIPPING TRANSFORMER FOR PROTECTING ELECTRICAL CIRCUITS

ally by electrically operated devices which, opening under unusual stress, cut off the circuit at a sign of danger.

As a rule, these automatic devices receive the power which causes them to open the circuit from "current transformers," which change the current from a large to a small quantity and keep the dangerous "voltage" away from the automatic devices. The transformers also assist measuring instruments in their duties as indicators and recorders of the current or power of the line. When thus used, the "transformers" must possess high accuracy and hence are quite expensive.

Today, if measuring and recording are unnecessary, as is true in many cases, a small "tripping transformer" (see illustration) designed recently by the General Electric Co., of Schenectady, N. Y., may be used in connection with the automatic device.

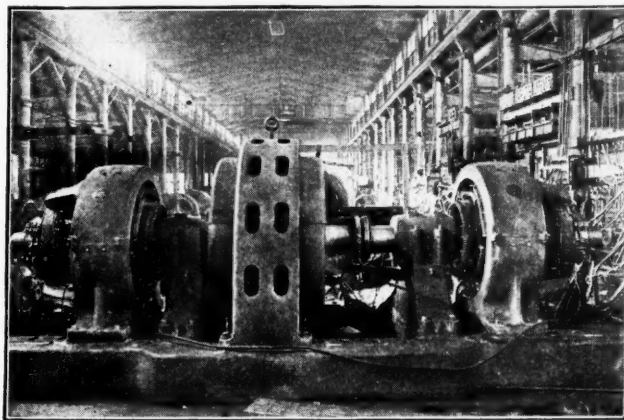
This eliminates the higher priced, more accurate transformer, and since the new device is accurate enough for tripping purposes, it offers a similar advantage; that is, it results in a simpler, cheaper and safer arrangement.

Although small and inexpensive, the new "invention" offers a convenient and satisfactory method of safeguarding valuable apparatus.

Two-Bearing, Three-Unit Motor-Generator Sets

Two three-wire, direct-current motor-generator sets recently installed in Ohio are a departure from the usual practice in construction. Instead of being of the four-bearing, three-unit type, or the two-unit type with a three-wire generator as one of the units, these sets consist of three units with only two bearings.

These sets, which were designed and built by the Crocker-Wheeler Co., of Ampere, N. J., consist of a 845-kv.-a., 2200-volt, 60-cycle, three-phase synchronous motor driving two 250-kw., 125-volt compound-wound interpole generators. The use of three units results in greater unbalanced overload capacity and greater



TWO-BEARING, THREE-UNIT MOTOR-GENERATOR SET

flexibility of the direct-current voltage than is obtainable with a two-unit set having a three-wire generator as one of the units.

As compared with the old four-bearing, three-unit construction, these two-bearing machines are much simpler in construction and have the following advantages: The absence of outboard bearings makes the brushes more accessible for adjustment and the unit can be assembled, dismantled and cleaned more readily. Perfect bearing alignment can also be secured with greater ease, since self-aligning bearings are used. The machines can therefore be erected with less labor. Because of the shorter length of the set less floor space is required. Couplings, which in some cases constitute a weak link, are eliminated.

As a general rule, it may be stated that in case of a mine explosion when men are working underground, arbitrary reversing of the air current in a mine ventilated by an exhaust fan is not wise, especially when the main traveling roads are on the intake current. Many men have lost their lives through air reversal when they were on their way out of the mine after an accident.

The Labor Situation

General Labor Review

It is difficult to size up the labor situation. The optimist would have it that it is a moving sight to see the president of the union traveling halfway across the country to browbeat the men for violating their contract, and would urge that the president of the Illinois branch of the United Mine Workers splendidly vindicates labor unionism by his sturdy determination to fire out of the union any and every man who goes on strike to secure concessions to which his contract gives him no right. The optimist will also call attention to the fact that the mine workers listened to the call of the union and ceased striking after a few days of idleness.

Reasons for Pessimism as to Labor Conditions

But the pessimist is not to be denied. He will declare that the strike was a violation not merely of literal obligation but of every elementary moral duty. There was first of all a contract, written, approved by referendum and signed. This contract, had been modified by the operators without a strike to meet what was regarded as a higher law. By that modification the higher cost of living was met. Without any further change in cost of living the miners asked for more pay. Though not needed or deserved, it was promised them subject to conditions—conditions which the mine leaders thought were satisfactory.

But the mine workers went on strike to jam the new scale through regardless of the conditions and regardless of the terrible need of the country for coal. They let everything be idle—mines, railroads and manufacturing plants—in the hope that they could compel the Government to concede their price. When the operators desired higher prices they did not thus try to coerce the Government, and the mine workers should not have done so either.

Patriotism Is More Marked in Eastern States

The anthracite miners have not, except in sporadic cases, tried to influence the Government in this way, though it is true the firemen have made some such attempts and been beaten in them by the vigor of union disapproval.

In western Pennsylvania, as is recorded elsewhere, the men at a few unimportant mines showed dissatisfaction with Garfield and quit their work. But in the Eastern coal states, taken individually or as a whole, there was nothing to compare with the disaffection in the States of Illinois, Indiana and Michigan.

Scattering strikes can be recorded, however. The mine workers employed in the Ohio and Pennsylvania Coal Co., West Pittsburgh No. 1 mine, at Bergholz, Ohio, and West Pittsburgh No. 2 mine, Amsterdam, Ohio, both in Jefferson County, have gone on strike for an increase in wages. The only mine in the section left working is Wolf Run. As a result of the strike No. 2 mine is flooded. There have been strikes at what are probably nonunion mines, for instance, the small Graham Coal and Coke Co.'s plant in Floyd County, Kentucky, where 60 men are employed. The mine has resumed work.

In Virginia the Low-Coal Men Demand Idle Days

Four hundred miners employed by the Raven Red Ash Coal Co., the Raven Colliery Co., the Carter Red Ash Colliery Co. and the Crockett Coal Co., located at Raven, Tazewell County, Va., and situated in the Clinch Valley, suspended work recently. This strike was not for an increase of wages, but for the privilege of working less than six days a week. The company posted a notice to the effect that every man must work a full week or show a doctor's certificate of inability. The men claim that the coal is too thin for such steady labor and the work too heavy.

The strike in the Middle West, as stated, is coming to an end. On Oct. 22 John P. White telegraphed Dr. H. A. Garfield: "All miners resumed work in Indiana this morning and practically all in Ohio. Latest reports from Illinois are that all mines are resuming in line with our instructions." Later information corroborates this report.

Arrangements are being made in other fields to imitate the agreement made in the Central Competitive District by similar contracts between operators and the United Mine Workers of America.

Grafton Contract Resembles Washington Draft

On Saturday, Oct. 20, the Grafton Coal Operators' Association, comprising operators of Preston and Taylor Counties, West Virginia, met a committee of the United Mine Workers of America, District No. 17, at the Willard Hotel, Grafton, W. Va. There they adopted the Washington agreement, including the provision that the advance in wage shall only become of force should the Government provide an increase in price corresponding to that advance.

At the same meeting the operators elected a grievance committee composed of Thomas Murphy, president; George S. Brackett, vice president, and H. R. Bissell, secretary, to act with a like committee of mine workers to settle grievances and disputes arising out of the working of the agreement made last summer. So far there have been remarkably few grievances or disputes.

Southwest Penalty Clause Difficulty Is Solved

On Tuesday, Oct. 23, the United Mine Workers of America reached an agreement with the mine operators of the Southwest. It duplicates the Washington agreement except in the penalty clause. An increase of from 10 to 16½c. per ton is granted for the mining of clean coal. The price for yardage is increased 15 per cent. Day labor will receive \$1.40 more per day.

A clause is attached providing an immediate hearing of grievances. Failure or refusal to await the decision before striking automatically puts in force a penalty, provided in the contract. The operator under this circumstance is authorized by the contract to hold a small part of the wages in escrow pending the determination of the grievance presented by the striking mine workers.

In Oklahoma it is evident that much of the labor unrest arises from the agitation of the Industrial Workers of the World directed from Minneapolis. At Henrietta, Okla., the police arrested Ebert, an I. W. W. organizer, on Oct. 21, while carrying a letter from W. P. Neff, national secretary of the I. W. W., directing Ebert to make every effort to keep the miners from their work. Another letter, this one from Mrs. William Boekenhegan, of Minneapolis, director of the field corps of the I. W. W., was also found on his person, and in his pockets were pictures of railroad wrecks, marked "Our Revenge."

Cannot Put All the Blame on the "I Won't Works"

Nevertheless, all the disorder does not arise from the promptings of the "I Won't Works," for the capacity for disorder and disquiet in the miners and mine leaders in the Southwest is well known throughout the coal industry. In fact, the Southwest district with its insurrectionary counsels is a thorn in the side of the union proper, which is anxious to keep some sort of good faith with the operators and to make its contracts, in some degree at least, respected.

In Colorado the State Industrial Commission has decided that the Rockefeller industrial plan is really not such a grievance as would justify the men in striking against it. In its report the commission says that the grievances presented by the union would have been adjusted without diffi-

culty under the Rockefeller plan, and that the investigation proved that there has been no discrimination against the union. The commission opposed the demand for an increased wage.

Having submitted their case to the consideration of the commission, the mine workers are at liberty as far as the law is concerned to go on strike. As the union has no contract with the company, no agreement stands in the way of a suspension of work. But the moral effect of the decision is great. A careful investigation has vindicated the Rockefeller plan and shown that the agitation was only started to build up the United Mine Workers of America. The public is now presented with the facts and will use them as a basis for judgment should a strike occur, in which event it is to be hoped that President Wilson will be found less complacent with unruly labor than he was on a previous occasion.

Anthracite Region Has Its Troubles

The anthracite region is not wholly free from strike trouble. Two thousand miners of the collieries of the Lehigh & Wilkes-Barre Coal Co., at Audenried, Honey Brook and Green Mountain, struck on Oct. 19, claiming that they had not received any satisfaction on the adjustment of several grievances. Miners had been suspended frequently for loading slate into their cars. They contended that they should not be required to separate the slate.

For many years it has been the custom to order the mine-locomotive crews to "drill out," that is, to place on a special track all cars which appear to contain an excessive quantity of slate. This track is termed by the miners the "court house," because on it is tried the question whether the coal sent out is acceptable or not. A man is set to unloading the car and hand-picking it. The slate and coal are segregated and weighed. Where the "trial" proves the coal excessively dirty, the miner who sent it out is given one day's suspension or is discharged according to the severity of the offense or the frequency with which it has been committed. Also, the check number being given to the dock boss, he docks the miner accordingly.

One hundred miners employed at a stripping at Ebervale, operated by Benjamin & Butler, went on strike on the same day when the company refused to pay them for separating the slate and rock from the coal.

A number of the United Mine Workers' locals in the ninth district, comprising Northumberland, Schuylkill, Dauphin and Columbia Counties, appealed to the court Oct. 17 for an injunction restraining the district officers from moving the general headquarters office from Shenandoah.

Tired of Waiting on Garfield

One hundred employees of the Armerford Coal Co., at Dilltown, Indiana County, Penn., a village along the Black Lick Creek branch of the Pennsylvania R.R., went out on strike on Oct. 18, declaring like the mine workers of Illinois and Indiana that they "were tired of waiting on Garfield." One may be extremely tired of Garfield's indecision—most of us are—but nevertheless it is a crime to quit work both in violation of one's contract and in the presence of the country's needs, especially when you are earning as much as the miners are at the present.

Ten of the striking miners were arrested by the sheriff of Indiana County and troopers of the State Constabulary, technically charged "with holding up the production of coal." The men were released later in the day.

At Robindale, near Armerford, the mine of the Cone-maugh Smokeless Coal Co. was shut down. Here, however, it was only necessary to state that the wage advance was dependent on a countervailing price increase being granted, and learning this the men returned to work.

On the following day there was a disturbance at Saltsburg, in the western end of the same county. Here 11 men were arrested following a strike at the mine of the Cone-maugh Coal Co., in which Wilbur P. Graff, of Blairsville, is interested. The men each paid fines of \$10 and costs. They were charged with interfering with men who desired to remain at work.

The Armerford strike took place at a union mine and there were fears therefore that the trouble might spread. Though central Pennsylvania has been quiet, its quietude being strongly in contrast with former conditions, yet there has been much discontent, the mine workers having an urgent desire to profit by the war. The chance to compel the public to pay them a large wage is good, and they cannot see why the public should not be made to pay it. They are extremely wrath with Garfield because he seems disposed to prevent them from profiteering.

On the Salisbury branch, in Somerset County, the Grassy Run Coal Co. has increased its force somewhat. Otherwise the strike for recognition of the union in the mines of the branch still continues in full swing.

Make Contracts and Break Them

The coal miners of Illinois, by going on strike Tuesday, Oct. 16, showed the same contempt for the contingent agreement signed by their representatives at Washington as they had previously twice shown in the past 18 months toward the joint agreements with the operators. Although the Washington agreement conditioned the increases of 10c. a ton for loaders and \$1.40 a day for shift men on an advance by the Government of the selling price of coal sufficient to cover the increased wage cost, and although that document expressly stated that the advance was not to take place till the first day of the pay period following the price increase, the men, without the knowledge or authority of their officials, went to the mines on the morning of the 16th and asked the pit bosses if they were to get the increase for the pay period then beginning. On being told that no such instructions had been received, they went home.

The strike started in St. Clair and Madison Counties, the two counties near St. Louis, Mo.; quickly spread over the Springfield district and extended within a day or two to the Carterville field in the south and to the northern fields.

At a mass meeting at Belleville, in St. Clair County, attended by 2000 mine workers, resolutions were adopted declaring that the mine workers would only return to work when the Washington agreement was "accepted" by the operators and only with the provisions that the wage contract should not run for a longer period than three months and that the penalty clause, providing fines for unauthorized and unnecessary strikes, be stricken out. Of course, the operators had accepted the Washington agreement in its entirety. The Washington agreement that the Belleville people demanded was an imaginary document which had never been written, but which they themselves wished to write. The operators will stand by the draft as signed.

During the first two or three days it looked as if the men would stay out at the risk of having Fuel Administrator Garfield use his "full powers," as he threatened to do. They seemed prepared to incur also the revocation of charters and expulsion of members, threatened by State President Farrington, but by Friday there were indications that the strikers were wavering. On that day Farrington sent telegrams to all district officers notifying them that charters would be revoked of all unions whose members were not at work on Monday. He also instructed the officers to cease issuing transfer cards. He declared there was no hope of forcing the Government to act on the contingent agreement and that their conduct, if persisted in, would bring about industrial conscription of the members.

On Saturday delegates from 15 mining communities met at Edwardsville to agree on a unified line of action, but opinion was found to be about equally divided and the only action taken was to recommend that locals defer decision until after three conferences to be held on Sunday, one at Belleville, one at Ziegler and one at Springfield. The Edwardsville unions met Saturday night and voted unanimously to return to work Monday morning. As a result of the Sunday conferences practically all the miners returned to work Monday morning.

The strike compelled some industries to close down in the St. Louis industrial district, and if it had continued the city and surrounding country would in a few days have been facing a fuel famine of great severity.

Editorials

USING Francis S. Peabody's remarks on "Coal Wasteage" as a text, certain of our masters, the consuming public, wandered into the meeting of the Coal and Coke Section of the American Institute of Mining Engineers at St. Louis and delivered themselves of some drastic criticisms of our coal-mining engineers, accusing them of wasting coal and declaring that this waste showed a deplorable lack of intelligence.

The mining engineer has long stood for more than this and will go on enduring it. A slatternly public that wastes coal in the burning of it, when economy would pay better than waste and would leave its homes in a more sightly condition, glibly reproaches an industry that wastes coal in the endeavor to produce fuel at a minimum cost. But enough was said about that at the meeting. It was rightly said that when the Government began to regulate the waste of coal in mining it would be in honor compelled to go further and prevent its waste in burning and to prevent the waste in the consumption of power.

It is easy for the coal consumer to say in effect, as many do: "I belong to a slacker industry whose operations are not essential to the success of the nation. Mine is a purely civilian occupation. It could be dropped with profit to the public. I do not help in any way; I rather hinder the progress of the nation. Therefore I should be allowed to make all the profit I choose, for the less the public buys of the material I produce the better. So also I should be allowed to waste all I will; I should be permitted to earn all that I can contrive to secure."

It is the slacker industry that is always urging that another industry is so important that it must be controlled, and in its charming innocence it even declares that the material it diverts from real uses to slacker purposes shall be sold to it without profit so that it can make the more money. The slackers demand that the conscripted shall toe the line and face the fire, but insist that they, because less useful and less devoted, shall be served and yet shall not, in their turn, serve the public. We are hearing much from them of late. At present they have the public with them, the war being only just started. The camera of public opinion is not rightly adjusted yet, and events are not seen and registered with their proper focus.

* * *

LET us pass to another equally important consideration of the coal-conservation problem. What hope can we have of successful mining engineering where the public ignorantly tries to be the mining engineer? Suppose we had laws, regulating the number of panels in a Howe truss, laws made not by engineers but by politicians, based not on a reason but on a passing whim.

We have such laws in coal mining today. Crosscuts have to be driven every so often—the frequency depending, on engineering? No, on the state in which the mine is located. Panels in bridges are arranged

not to suit the law and not merely to accord with ancient practice, but so that the bridge will most effectively and economically do its work. Now crosscuts should be regulated in the same way. The main problem is to bring air to the men. If it can more effectively be brought some other way than by crosscuts, these "pillar worms" should be done away with.

The law does not to any great extent reduce the length of crosscuts and hence it does not directly cause the engineer to provide inadequate pillars, but by requiring excessive frequency it compels the operator to make the crosscuts short or to make them wide to save money. In either case the pillar is entirely destroyed by such tactics. "First mining" is made final mining, and the outcome is distressing. In one Illinois field 52 per cent. of the coal is left and crosscuts are driven 30 ft. wide in order to avoid the heavy yardage charges for narrow work.

* * *

THE solution of the difficult problem would be simple if the law would permit the operator to largely eliminate crosscuts and replace them by booster fans (or rather diversion fans) and air conduits. Every room should be separately ventilated by a conduit and a small fan which draws on the main current in the entry. Crosscuts should be made in main haulageways only where entries are put off or where the return airways of these entries demand them.

Let it not be thought that less air or inferior air is advocated. Put up the requirement wherever you please, but do not specify that it be provided by crosscuts. Do not allow legislators to do the engineering of mines and then sneer at the inefficient way in which the work is done. It is a pleasant habit of these gentlemen. They take credit for your successes and hold you chargeable with all the failures their follies impose upon your industry.

A mine without crosscuts, with air mechanically and methodically directed to every working place, would be well ventilated and ideally fitted for complete and economic extraction; and each man would have measured to him the air which he needs and to which he is entitled. The diversion fan, the conduits and the coal conveyor are destined to do more than any other agencies to make mine operation more healthful, conservational, economical and rapid. But it will be hard to make this provision till our present crosscut legislation is wiped from the statute books or liberally amended.

In a happy day mine rooms will no longer be temporarily unapproachable owing to the presence of smoke or gas. The idle moments of the miners caused by finding their rooms marked for gas or unapproachable by smoke have helped to make them dilatory in habit. The industrial habit in a factory would be destroyed by the frequent hanging of a legend "Not working" over a machine or a department. It wouldn't be allowed in a well regulated factory. Why tolerate it in a mine?

Wasting Fuel at the Source

THE cry throughout the Nation is for economy. Coal-mining men echo the chant and declare that consumers must save on fuel consumption if we are to avoid distressful conditions this winter. This all brings up one question—Have we our own house in order? Is our record in the matter of fuel consumption at the mines clearly above reproach?

Approximately four out of every hundred tons of coal mined are consumed for steam and heating purposes at the different mines. Couldn't we save a few million tons by improving our practices at the various coal-mining power plants? We cannot consistently ask others to exercise intelligence unless we set a proper example.

When we consider that the Nation's output of coal this year will amount to more than 650,000,000 tons, we are likely to figure that a couple of million tons more or less isn't a matter of such great moment. However, such an item as 2,000,000 tons is sufficient fuel to continue Italy in the war as an effective ally.

Let us not be among those who are always glad to let the other fellow buy a Liberty Bond, eat less meat, consume less wheat, wear last season's overcoat and burn less coal, while they themselves continue in their customary course. Let us practice what we preach and start today by making a visit to each power house and boiler plant to see just how many tons are being wasted by our own local firemen.

Anthracite Is Now To Be Stripped in Modern Way

THE anthracite operators are not by any means wedded to their stripping methods. They are preparing already to strip the surface of the coal by a one-handling or direct-stacking process. They fully realize that much of the coal uncovered could be lifted and deposited by shovel into the place designed for it without the use of trains of cars, dinkies and a small army of workingmen. They have the money also to translate their preferences into action, and it is quite likely that the anthracite region will develop methods that will even make those followed in the bituminous regions look puny.

The strippings of hard coal have always been of leading importance by reason of the solidity of the rock they removed, the great depth of the overburden and the large areas uncovered. The only supremacy the bituminous strip pits possessed was in the simplicity and economy of the methods employed—conditions gradually arising out of the favoring character of the problem presented.

What the bituminous strip-pit men have learned under their conditions, the hard-coal strip-pit men will make available to the problems of anthracite extraction. It is understood that two companies are installing, or have already installed, machines of mammoth type—the Lehigh Coal and Navigation Co. and the Charles M. Dodson Co. It will not be long, doubtless, before others will follow. But the machines now offered for sale are inadequate for some of the greater depths of excavation for which the anthracite region is well suited. The result will be that something larger and more revolutionary than anything in Kansas, Illinois and Ohio will be evolved eventually.

National Research in Coal Mining

PRIOR to the war, the problems of research in mining were popularly supposed to be special subjects for the attention of only a few inventive minds. The adaptation or application in an organized way of such investigations was not thought to be worth while so far as common everyday mining was concerned. Many coal officials scoffed at the idea that research could accomplish anything worth while for this rough-and-ready industry.

The war has changed all this, and coal mining, as well as other industries, is today hoping for help of a scientific nature in the solution of its problems.

Great Britain has taken the lead by appointing a Fuel Research Board. This is a bold step forward and probably means that instead of a number of inadequately equipped concerns trying in a desultory way to solve coal-mining problems, there will be a national committee, having government backing, to which board appeals for help out of difficulties can be presented.

The preliminary work already lends hope to the success of the scheme. The first bulletin is entitled "Memorandum on the Means To Be Adopted To Diminish the Decay of Timber in Coal Mines." Additional work is based on Huxley's belief that "any social condition in which the development of wealth involves the misery, the physical weakness and the degeneration of the worker, is absolutely and infallibly doomed to collapse." Following in this line, investigation will be made to determine the influence of hot and moist atmospheres on workers employed in mines. A second branch of research will investigate methods that can be used to dry and cool the atmosphere in mines.

These particular studies will doubtless prove of greater benefit to the British than to the American coal industry, because the mines in England and Wales are generally deeper than those in the United States. However, any improvement in underground conditions, even in shallow mines, must benefit the health of the men and thereby increase output. Measured individually, each miner may not appear to be doing much more, but even a few pounds increase per man will result in a substantial enlargement of the total production.

Still another research has been started to inquire into the types of breathing apparatus used in coal mines, and by experiment discover the advantages, limitations and defects of the several types of apparatus; what improvements in them are possible; whether it is advisable that the types used in mines should be standardized and to collect evidence bearing on these points.

In order to carry forward these research plans, Great Britain has provided a grant of \$5,000,000, to be expended on a coöperative basis in undertaking these scientific investigations. In the disbursement of this fund equal or agreed amounts will be furnished by voluntary associations of mine owners. This places the research work that is to be done under the control of the industries. The operators in Great Britain and Canada have heartily indorsed the scheme and are expecting this work to result in more efficiency and better conservation.

All the foregoing furnishes the coal-mine operators of the United States with food for thought. It is likely that when once a practical and sensible plan of scientific research has hit the American coal industry we will all say, "How did we ever get along without it?"

National Coal Association Meeting

In response to a call of the National Coal Producers' Association of the United States fully 2000 coal operators from all parts of the country met in Pittsburgh, Penn., on Oct. 23. Harry A. Garfield, United States Fuel Administrator, in an address made at the meeting

resolution was passed unanimously expressing afresh the confidence of the bituminous operators in the Fuel Administrator.

The Committee on Cost Accounting of the association submitted to the convention a proposed "Preliminary Draft of Standard Distribution of Coal Mining Cost," for the use of the Federal Trade Commission. The

PRELIMINARY DRAFT OF BITUMINOUS COAL REPORT FORM

Proposed by the National Coal Association for Use by the
Federal Trade Commission

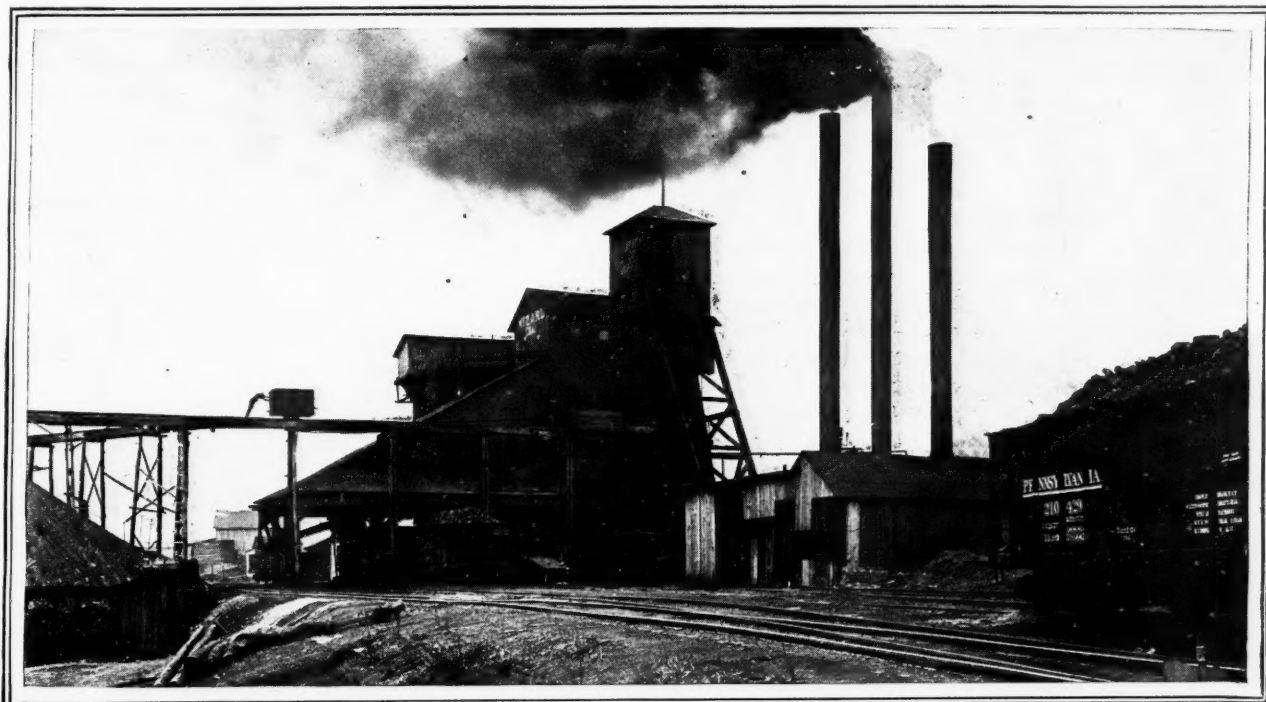
COST				INCOME			
I. Mining Cost		Amount	Per Ton	Coal Sales, Including Purchased	Tons of 2000 Lb.	Amount	Per Ton
Labor:				Coal (exclusive of anthracite):			
Mining				Local sales—retail sales at mines—			
Yardage and deadwork				net returns			
Day work, nonproductive (including repair labor)				To Railroads:			
Power plant labor				At tippie			
Mine office and superintendence				Shipped			
Total labor				Other Shipments:			
				Via rail			
				Via water			
				Coal coked by producing company			
				(inc. coal washed)			
				Power house fuel			
				Total sales			
				Cost of Sales:			
				Total mine cost			
				Purchased coal cost (exclusive of anthracite)			
				Inventory first of month			
				Total			
				Inventory last of month			
				Total Cost of Sales			
				Gross profit on coal sold			
				Deduct selling expense			
				Income from sales			
				Miscellaneous income (net)			
				Profit in cashing pay statements			
				Heat, light and power			
				Dwellings and farms			
				Stores, miners' supplies, commissaries, etc.			
				Standard gauge railroad equipment			
				Floating equipment			
				Coke and byproducts			
				Washed coal			
				Anthracite purchased			
				Other income (particularize)			
				Total income (sales and miscellaneous)			
				Less deductions from income			
				Net income			
				COAL TONNAGE (2000 Lb.)			
				Prepared Run-of-Mine Slack Total			
				Sales:			
				Local sales—retail sales at mines—			
				net returns			
				To Railroads:			
				At tippie			
				Shipped			
				Other Shipments:			
				Via rail			
				Via water			
				Coal coked by producing co. (inc.			
				coal washed)			
				Power house fuel			
				Total sales			
				Add			
				Inventory end of month			
				Total			
				Deduct:			
				Inventory first of month			
				Purchased coal			
				Total deductions			
				PRODUCTION			

asked the coal men to lay aside their differences and get behind the President.

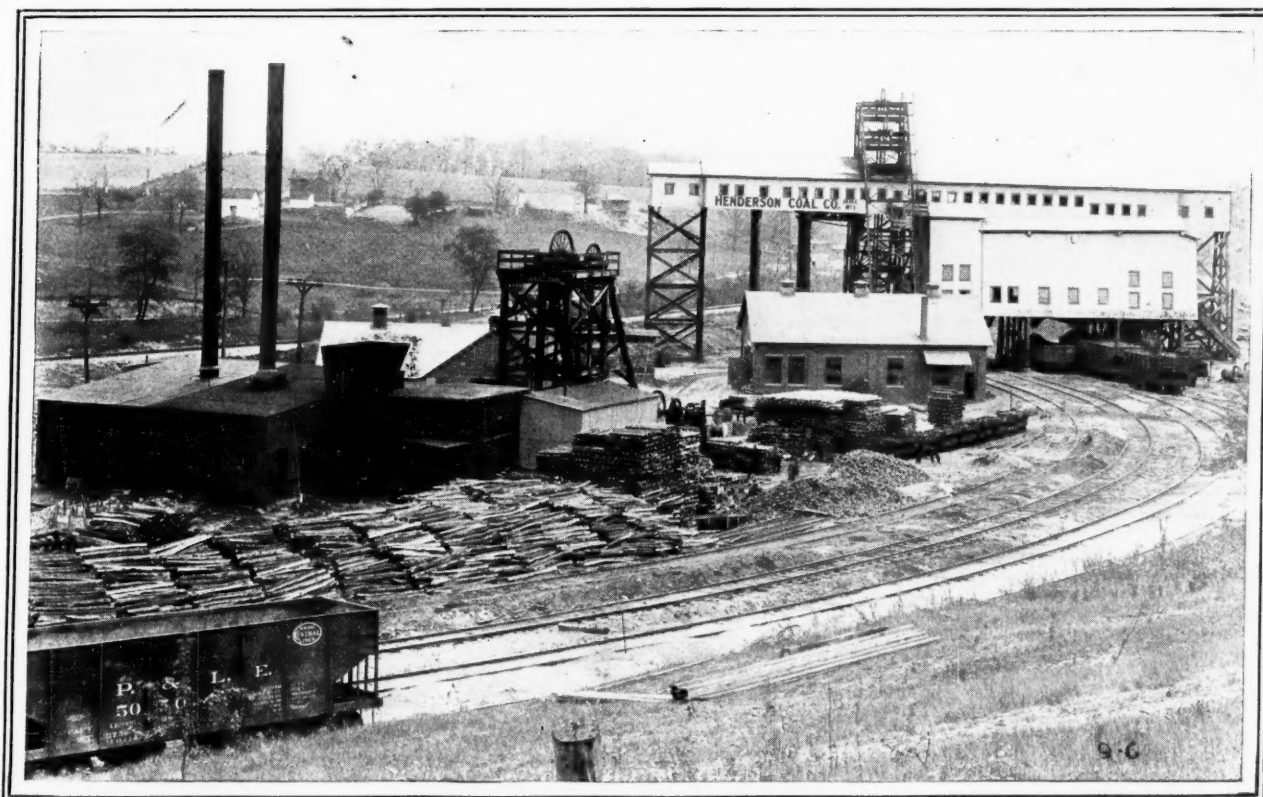
No definite reference to prices was made by Dr. Garfield, but he pointed out the necessity of conscripting industrial forces as well as men and asserted his main object to be the increase in the production of coal. A

form is reproduced on this page. Criticisms of the form and suggestions of change in it are invited and will receive the committee's most careful consideration. Any suggestions or criticisms should be communicated promptly to J. B. L. Hornberger, the chairman of the committee, Oliver Building, Pittsburgh, Pennsylvania.

Snapshots in Coal Mining



WIZARD MINE POWER HOUSE AND TIPPLE, TERRE HAUTE, INDIANA



GENERAL VIEW OF HENDERSON NO. 1 MINE OF THE HENDERSON COAL CO., HENDERSONVILLE, WASHINGTON COUNTY, PENNSYLVANIA

Discussion by Readers

Mining Thin Coal

Letter No. 3—For the past three years I have been working coal ranging from 22 to 33 in. in thickness. The coal I am working at present will average about 29 in. thick. This mine is remarkable for two things: First, it has been operated more or less continuously during the past 14 years. Second, numerous experiments have been tried to mine this coal with varying success. I thought that a brief description of some of these methods would be of interest, in connection with the inquiry of H. J. Werder, *Coal Age*, Aug. 25, p. 340.

The mine supplies domestic trade only. It is opened by a drift, which starts from the bottom of what was formerly the bed of a stream and is inaccessible to teams. On that account all the coal has to be hauled up an incline having a grade of 25 per cent., to a vertical height of 80 ft. where it is dumped into the farmers' wagons. The cars are hauled up this incline by a horse whim.

In the mine the seam dips in all directions from the drift opening, making it necessary to employ mules to haul the cars to the surface. Owing to the thickness of the coal, the cars are built low, being 3 x 4 ft. on the bed and 18 in. deep, and having a capacity of $\frac{1}{2}$ ton. The cars are mounted on a truck having inside wheels and running on a 26-in. track gage.

The coal is an excellent grade of lignite and is in good demand. It is hard, requiring to be undermined before it is blasted and, even then, much slack and fine coal are produced. A miner can load about 2 tons a day, using a fork for the purpose. Naturally, the mining rate is

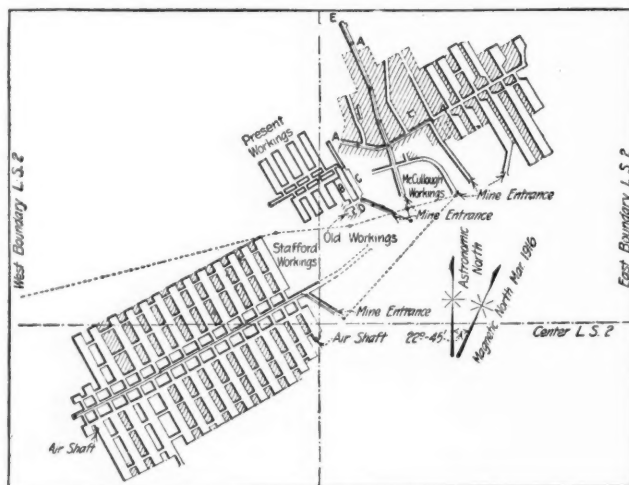


FIG. 1. MINE MAP, SHOWING OLD AND NEW WORKINGS

high, and this fact alone has caused many experiments to be tried seeking for better results.

In Fig. 1 is shown the present extent of the workings. The original drift opening is shown dotted, and the old workings are marked "Stafford Workings." This portion of the mine was opened by a new drift marked

"Mine Entrance." In the new workings a single main entry is shown driven on the butts of the coal, about 7 ft. in width. To the right and left of this single entry, rooms are turned on 38-ft. centers. The room-necks are driven narrow a distance of 12 ft., at which point the rooms are widened out to a width of 20 ft. and crosscuts driven through the pillars, which are 18 ft. thick. These first crosscuts are called "counters," as they take the place of a return airway.

In order to provide headroom for the mules, it was necessary to lift 2½ ft. of bottom on the main road and in all room-necks and rooms, where the road was laid

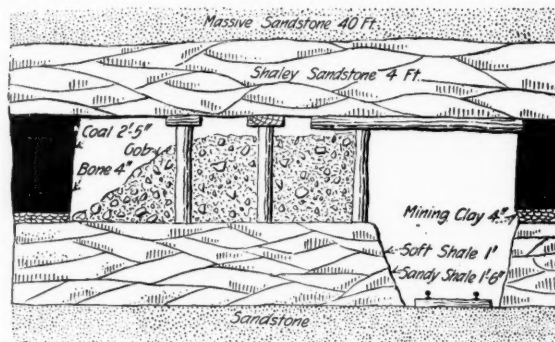


FIG. 2. CROSS-SECTION OF ROOM IN THIN SEAM

along the straight rib. Before the rooms were widened out, the rock taken from the bottom was hauled out of the mine and dumped, but later it was gobbled in the room. The bottom rock was shot up every fourth day, about 6 ft. being lifted by a single shot.

A bench was always left at the face for the miner to lie on while mining in the 4 in. of clay underlying the coal. Lying on his side, he would undercut the coal to a depth of about 3 ft. One day, the miner would undermine and shoot the coal in the face of a 20-ft. room. The next morning he would load out his coal and, in the afternoon, clean up and timber his place and lay track. Fig. 2 shows a cross-section of a room, which gives a good idea of the manner in which the rooms were driven up and timbered. This is the only method that has proved successful in working this coal.

In the upper right-hand portion of Fig. 1 is shown a method tried at one time. It consisted of a modified longwall, where three 60-ft. faces were advanced, the middle one being about 40 ft. in advance of the others. As shown in the figure, a roadway was maintained in the center of each room. In this case the necessary headroom was obtained by blasting down 4 ft. of the shaly sandstone roof, the refuse being stored on each side of the roadway. It took two men the best part of two days to mine and shoot a 60-ft. face and about the same time was required to load out the coal, clean up the place and lay track. At that time, a small truck having a removable box was used to convey the coal along the face to the roadhead.

The great difficulty, in this method, consisted in blasting the roof. With a ratchet drill, more than an hour was required to drill a 5-ft. hole in the hard sandstone, and it was necessary to set heavy timbers along the roadside to act as breakers. The charge consisted of five sticks of 40 per cent. dynamite. It occurred frequently that the bench on which the breakers stood would yield and the roof rock be broken over a considerable area, which caused the method to be abandoned.

Later, the room-and-pillar workings shown on the east of the longwall section were opened, and numerous widths of rooms and pillars were tried. It was found that where the pillars were too narrow, the roadways heaved badly, and when a width greater than 18 ft. was used, it was impossible to recover all the coal in the pillars. It was about this time that I acquired possession of the property and since have vainly tried three other methods.

NUMEROUS PLANS TRIED WITHOUT SUCCESS

In order to avoid yardage, I drove the place marked *C* in the plan 12 or 14 ft. wide, brushed the roadway and built a good packwall on the side of the road. The same idea had been tried in driving the entry marked *E* ahead of the longwall section; and, from my observation in that entry, I concluded the plan would not work and abandoned the scheme. My conclusion was shown to be correct when it became necessary to retimber the place after nine months.

In the rooms marked *B* and *D* on the plan I did not brush the roads, but used a small car with plain wheels to move the coal along the face, and the miner would push this "buggy," as it was called, out to the mouth of the room. It was found, however, that when the distance exceeded 15 yd. the labor of pushing the buggy back and forth was greater than that of lifting bottom to permit a mule to enter.

In the room marked *B* I attempted to haul the coal from the face to the mouth of the room in a scraper, which was drawn by a mule on the entry. This plan also failed, as the miners did not like the work of pulling back the scraper for another load.

ROOM-AND-PILLAR METHOD GIVES BEST RESULTS

As a result of these experiments, I returned to the room-and-pillar method, laying a track along one rib. I am now driving rooms on 30-ft. centers and these are widened to a width of 16 ft., leaving 14-ft. pillars. The room-necks are driven 6 ft. wide, a distance of 12 ft. The entry is thus protected by room-stumps 12 x 24 ft. The rooms are driven up a distance of 150 or 175 ft. The 14-ft. pillars are drawn back in the usual manner. The entry-stumps can rarely be extracted as they are badly crushed, and it is impossible to control the roof after the room pillars have been drawn.

I am using 24-lb. rails in the main entry and 12- and 16-lb. rails in the cross-entries and rooms. About 4½ lin.ft. of timber is required per ton of coal. Pick miners are paid \$2.50 per ton of coal loaded in the car with a fork; narrow work is paid for at the rate of \$4.50 per yd. The coal sells in the chute at the top of the incline for \$4 per ton. This gives a margin so slight that the closest attention to details is required in order to pay a profit in the operation of the mine.

Carmangay, Alta., Canada.

T. EDWIN SMITH.

Working Pittsburgh No. 8 Coal

Letter No. 3—Referring to the inquiry of E. O. Carney, *Coal Age*, Sept. 22, p. 509, regarding the working of the Pittsburgh No. 8 seam, I infer from his observations in the adjacent mines and their condition that the method adopted in working those mines does not appeal to him as being the one he should employ in opening up a new mine in the thousand-acre tract he is about to develop.

In order to overcome the difficulties that he says have been experienced in the adjoining mines and to reclaim at least 95 per cent. of the area worked, I would advise the adoption of the three-entry system of mining, and would use pillars not less than from 50 to 60 ft. in thickness, on all main and face entries. I would be inclined to use about the same thickness of pillar on the butt entries also.

Where rooms are driven off the cross-entries so as to parallel the main entries a pillar 100 ft. thick should be left between the first room and the main entry or air-course. This will give a total pillar support of 320 ft., protecting the main entries, which will be sufficient for all time to come.

ADVANTAGE IN WIDE ROOM PILLARS

The rooms should be laid off on 45-ft. centers and driven up 21 ft. in width, which would be ample for working chain breast machines and leave a 24-ft. pillar to be drawn back when the rooms have reached the limit. The advantage of this plan is that, since the pillar has a greater width than the room, the fall that always occurs as the pillar is being drawn back will not be liable to run down the room past the end of the pillar.

When the robbing has proceeded a certain distance the break will extend to the upper measures and these being once broken the danger of squeeze will be greatly lessened. This will also have the effect of draining any water from the overlying measures and the inside workings of the mine will become dry.

The use of the three-entry system will do away with the need of doors and trappers, and this saving will go a long way toward paying the extra yardage incurred by driving three entries instead of two, as in the double-entry system. Also, the possibility of an accident caused by a driver running into a closed door is avoided. The three-entry system, moreover, gives better ventilation, and less moisture is deposited from the air on the timbers and the roof, which has the effect of water-logging and rotting the timbers and loosens many tons of roof slate and shale that must be cleaned from the roadways at much expense.

RECOVERY INCREASED FROM 65 TO 95 PER CENT.

To my knowledge, there are many mines now being worked successfully on the method that I have just described. These mines were first started on the same plan that has given so much trouble in working the No. 8 seam in and around Wheeling, on both sides of the Ohio River. While there was only recovered from 65 to 70 per cent. of the coal, by the previous method, more recent operations are taking out 95 per cent., which is due to leaving larger pillar supports and removing those pillars as the work progressed. In my opinion, it is

criminal to work mines with no thought of recovering more than 65 per cent. of the coal in the total area worked. The coal lost, in that case, can never be recovered, but is lost to all future generations.

It is the old story so often told of "treading the beaten path." During the past 45 years, or since the mining of coal in this section began, it has been the practice to leave a large percentage of pillar coal, because the method of working employed brought on a squeeze that made it practically impossible to take out the pillars.

To illustrate, let me assume that Mr. Jones operates a mine at A, on the old plan of working, and Mr. Smith, who is about to open a new mine in an adjoining tract, at B, first looks over the Jones operation, learns how it is worked and plans his own mine accordingly, using the same method, which he is told is "the only way to mine that coal." It is not surprising that, in a short time, he meets the same difficulties and obtains no better results than were got by Jones. Let us strive always to improve on the other fellow's method.

Wheeling, W. Va.

R. T. DAVIS.

Letter No. 4—I have been interested in the letters relating to the working of the Pittsburgh No. 8 coal, having had experience in working seams under similar conditions, except that the cover was twice as thick as what is claimed in this case.

In my opinion, the conditions described by writers, regarding the Pittsburgh seam, are favorable to the longwall method of working. It is sometimes said that longwall mining is only suited to working thin beds of coal. That objection, however, would not apply to this seam, which is said to have an average thickness of 5 ft. Much thicker beds than this have been worked successfully by longwall, in the old country, where the conditions are much worse than appears to be the case here.

WHY LONGWALL MINING SHOULD BE EMPLOYED

What appeal to me as the particular features inviting the use of the longwall method of mining, in this case, are the following: Longwall mining gives the largest possible percentage of extraction and provides better ventilation of the working face. I understand that cutting machines are used for mining the coal, and the adoption of the longwall method would avoid the necessity of blasting the coal, which would reduce the chances of dust explosion, and prevent largely the breaking of the roof by blasting.

The 10- to 14-in. drawslate, together with the refuse resulting from brushing the roads, would furnish ample material for the building of good packwalls. The 8 to 10 ft. of soapstone overlying the thin coal above the drawslate will furnish a good roof for longwall working, owing to the soapstone being an elastic rock that will bend gradually without breaking, where the work is properly conducted. Under the comparatively thin cover, said not to exceed 500 ft. in thickness, the strain on the packwalls and gob will be proportionately less and a smaller amount of timber will be required to protect the working face.

In these times of urgent need, much attention should be given to the question of securing the largest possible extraction of coal, in the quickest manner and at the least expenditure for labor and material. I believe this is assured in the adoption of the longwall system of

mining. The claim made that the difficulties would be largely or wholly prevented by the adoption of larger pillar supports is, in my opinion, not worthy of the same careful consideration as the adoption of the longwall system of mining for working this seam.

In closing, let me say that longwall mining has not been as extensively used, in this country, as the advantages of the system deserve. I have not drawn a plan of this method of working, because it has been so frequently illustrated and is so well known that it would seem unnecessary to introduce the plan here.

Peru, Ill.

GASTON LIBIEZ.

Qualified Mine Foremen

Letter No. 4—It might appear out of place for a mine foreman to discuss the question of what his qualifications should be; but his knowledge of the work will excuse him from such criticism, even though he does not measure up to the standard himself.

In the first place, let me say a mine foreman should hold a foreman's certificate if for no other reason than that it will give him a better standing with his men. As has been remarked, men have greater respect for the orders and place more confidence in a man's judgment if he is known to hold a certificate. Every foreman knows that to gain the respect and confidence of his men is nine-tenths of the game.

The qualifications of a foreman may differ with the viewpoint from which they are considered. For example, regarded from the viewpoint of the men, a qualified foreman is the man from whom they can squeeze the most money for the least amount of work. I am speaking now from the experience I have gained as a foreman. On the other hand, from the superintendent's point of view, the best qualified mine foreman is the one who can squeeze the largest amount of work out of the men for the least money and thus keep down the operating costs. Human nature is human nature wherever we find it, and, in my opinion, one of the essential factors of a qualified mine foreman is the ability to understand human nature.

INEFFICIENT SUPERVISION CAUSES DELAY

The foreman must use good judgment in paying his men for extra work and in directing the work of company men. In these two respects, it is possible for the foreman to show his qualifications for the position he holds. He must be farsighted and anticipate the needs and requirements in every part of the mine in order to avoid delay and not increase the cost-sheet.

In the operation of a mine, it often happens that trackmen are sent to lay a switch, or timbermen are directed to proceed to set timbers, in places where the needed material is not at hand. As a result, half the shift is taken up in looking around for what is needed to perform the work. When it is found, more time is spent in getting it to the place where it must be used. The mine foreman is busy in some other part of the mine and often does not realize his mistake in failing to have the material ready at the place, before sending men there to perform the work.

The result of such inefficiency on the part of the foreman has its effect on the men. They think that no one

is taking any interest in them or knows how much or how little work they do; and, naturally, they become indolent and accomplish little. The blame for this condition lies wholly with the foreman who planned the work but did not provide the material required.

While it is true that a mine foreman must depend, to some extent, on the reports of his assistants and fire-bosses, it is my belief that a qualified foreman will follow up these men and know personally how much and what kind of work is done and how well it is performed in every part of the mine.

I do not agree wholly with the remark of a former correspondent who claimed that the mine foreman should be able to run any class of machinery employed in the mine. No doubt such ability would be a grand asset, but I do not think that it is absolutely essential in a qualified foreman, who should rather have the judgment to employ men who are capable.

One of the essential requirements of a qualified foreman pertains to the safety of the men in his charge. It matters not whether the law requires certain things to be done or whether there is no mention made of avoiding a known danger, the qualified foreman will recognize and remove the danger. He is guided more by the spirit of the law than by its letter, and the safety of his men is always on his mind.

Heilwood, Penn.

THOMAS HOGARTH.

The Handling of Men

Letter No. 1—Probably there is no greater factor required in the successful handling of men than that of rigid discipline. Especially is this true in underground work. I am led to make this remark after reading the Foreword, *Coal Age*, Sept. 8, on this subject.

An examination of the reports of mine inspectors in all coal-producing states will show that the large majority of accidents occurring in mines are the result of someone's carelessness. No argument is needed to prove that the carelessness of workmen is largely due to lack of discipline, as this is generally admitted to be the most effective means of breaking the habit.

MINE OFFICIALS' DUTY TO ENFORCE DISCIPLINE

The securing of proper discipline in mines lies wholly with the mine officials in charge. It must be preached by the mine inspectors, urged by mine superintendents and enforced by mine foremen. It will not be denied that discipline must be enforced with the greatest rigor if we would reduce the risk to life and property in the operation of a mine.

In no industry is there greater risk of accident, through lack of discipline, than in coal mining, and I believe it can be said with truth that no industry shows a greater lack of discipline. The reason for this is found in the fact that underground work requires the employment of men in groups isolated from each other and subject to the supervision of the foreman only at intervals. In fact, a mine foreman sees his men but once a day and sometimes not even that often.

On this account, the use of severe measures for the enforcement of discipline in mining is all the more important wherever this is necessary. The mining laws and mine rules and regulations are all framed with the view of making the work of the miner as safe as pos-

sible. If these rules and regulations are not enforced, they are useless. Indeed, a law not enforced becomes a dead letter and its effect is to handicap the successful handling of men.

There are two general causes of the failure to enforce discipline; namely, the ignorance of the one who has violated the law, which suggests the advisability of remitting the punishment, and a misguided judgment or sentiment on the part of the mine official whose duty it is to see that the laws are obeyed.

Ignorance of a law can seldom be urged as an excuse for an act not being punished. It will generally be found that a suitable punishment for the violation of rules on the plea of ignorance or forgetfulness will make the transgressor understand and remember what is required of him thereafter. A man punished for a fault of ignorance is not likely to repeat his act. When every mine worker understands that a breach of the mine rules or regulations will be punished, he will observe more care not to break the rules.

NEED TO ABOLISH SENTIMENT IN DEALING WITH VIOLATIONS OF MINE RULES

The effect of sentiment, on the part of a mine official, is to encourage rather than discourage violation of rules. A mine official will naturally denounce any violation of rules by a workman; but, if the man has a wife and family dependent on him, many officials are prone to overlook his error, which is then liable to be repeated either by himself or others who are observant.

Such a mine official displays a misguided judgment. I would ask, What of the wives and children of the several hundred other men whose lives have been in jeopardy because of the breach of a law or rule by a fellow worker? It is better that one family suffer rather than run the risk of a disaster that would affect a large number of families of the employees in that mine.

Another cause of lack of discipline is the fact that mine inspectors are rarely able to secure a conviction when they have caused the arrest of a man who has violated the mining law. This may be due to the belief of a jury that it is unnecessary to inflict punishment on a man of good moral character and whose family will suffer more by his act than he will himself if he is imprisoned. The most effective means of enforcing discipline is a prompt discharge from service, and even this is hard to advise when good mine labor is scarce.

Kingston, Penn.

FRED B. HICKS.

Unit vs. Departmental Contro.

Letter No. 4—The editor's Foreword, *Coal Age*, Sept. 15, relating to the question of unit as opposed to departmental control, offers a wide field for discussion.

It is a common feeling among those who adhere to the unit type of management that, as the old saying puts it, "Too many cooks spoil the broth." Someone has remarked that "The best committee is one of three members—with two at home sick in bed."

Observation in mining fields makes it apparent that, generally speaking, one aggressive foreman can put more "pep" into a force employed in a single operation than a half-dozen bosses. This fact has been proved conclusively in the case of a mine that has been operated successfully for years under one foreman, who has

proved himself all-powerful and observant of everything that transpires in connection with the mine in his charge.

However, men with the qualifications required to make good foremen are rare. Few men possess the brains, education, technical knowledge, tact, energy, honesty, common sense and good health required to successfully fulfill the duties of that position. Allowing the truth of this statement, practically no one is fitted to make an ideal boss, and no one individual should be held responsible for the successful management of an entire mine of any considerable size.

EXCEPTIONAL QUALIFICATIONS OF SOME MINE FOREMEN

That there have been, and are, highly respected and efficient mine foremen goes without saying. I know men in that position whose talents are far above the ordinary and whose personal bearing commands respect. An operator who has such a man in his employ is indeed fortunate. As long as he can retain his services, the success of the operation is assured; but should this extraordinary foreman die or retire, let me ask, where could that operator look for a man to fill his place?

To my mind, there is but one answer to this question; namely, the man's successor will be hard to find. This brings us face to face with the great advantage that functional management possesses over unit control. Most everyone will agree, of course, that a very small operation, employing say 50 or 100 men, can generally be run best by a single foreman. For such an operation to be burdened with the expense of two or more foremen would be out of proportion to the income that such a mine could be expected to produce.

My remarks must be construed, however, as referring solely to those larger operations employing several hundred men. Here, the workings are so extended that it would require the services of a superman to direct and oversee the entire work, could such an individual be found. Large operations afford good opportunity for classification of the different lines of work and demand a larger number of persons to supervise and direct the work in each branch of the undertaking.

In such cases, there will be a general electrician, boss driver, outside superintendent, in addition to the mine superintendent and underground foreman and his assistants and firebosses. It may be argued that to divide the supervising power is to weaken an organization, but I contend that a man skilled in one line of endeavor is always better than a "jack-of-all-trades."

Philadelphia, Penn. WILLIAM RUSSELL RORER.

Letter No. 5—In discussing the question of whether a business or operation should be under the control of a single unit, or supervised by several departments, each having the charge of a separate branch of the work, two points are uppermost in my mind. These are: (1) The human element or personal capability of the one on whom the success of the proposition depends and (2) the size of the undertaking.

It may be said that almost any method of operation and control will prove successful, provided the men behind it have the go and push to start things and keep them moving. Without these faculties any system, however perfect, will prove a failure. There is also a limiting factor that must be considered, and that is the

amount of work that one man can successfully accomplish.

An extremely interesting story, by Cameron Mackenzie, appeared a few months ago in the *Saturday Evening Post*. Briefly told, it described two business houses that handled the same line of goods. The smaller one of the two was located in a city of somewhat less size than that in which its rival was located and did a lesser volume of business than the latter.

The smaller business was presided over and managed by a capable man, who habitually assumed control of all matters of any moment. Everything of importance was referred to him for his decision, which made him an extremely busy man. Naturally, he attributed the success of the business to his own personal efforts.

The larger business, in the greater city, was presided over by a general manager, who, strange to say, though capable, was seldom in his office and found plenty of time for golfing and like pursuits. The business in his charge had wide ramifications and was highly successful. There came a time, however, when the general manager of the larger business died. The search for a successor large enough to fill his shoes resulted in the selection of the general manager of the smaller business, in the neighboring city. That house was widely known because of the success with which its business had been conducted.

UNIT CONTROL OF A LARGE BUSINESS FAILS

The story goes on to show how the new general manager, according to his habit, took upon himself the burden of personally supervising the work of the several departments that had been built up by his predecessor and its head made responsible for his particular line of the business. It can be well imagined that this was an enormous amount of work for one man to undertake, and the new manager's desk was gradually snowed under, despite his almost superhuman efforts to keep pace with the work he had chosen to assume.

The most important feature that resulted in this change, however, was the fact that the wonderful departmental organization, which had proved so successful under the old management, now disintegrated and became worthless, simply because the responsibility each department head had previously enjoyed was denied them under the new management.

The story concludes that it took just two years for this highly successful business man to prove his own incapacity for handling the larger undertaking, on the same plan that he had employed in the smaller business. The story is pathetic, but extremely illuminative, showing as it does the limitations of a successful man and proving that methods, which succeeded when applied to one operation, may not produce the same results in another undertaking. A man's ability is limited by his capacity for work.

It does not follow, however, that departmental control is always the best for a large operation. Experience proves that large corporations, working on this system, often possess no soul, and the undertaking suffers itself through the natural friction of the different departments and their failure to cooperate to the same end. Let me conclude, by saying again, that the success of any system depends most largely on the men behind it.

Montreal, Canada.

KAPPA.

Inquiries of General Interest

Concrete Lining in Shaft Sinking

We are about to start the sinking of two new shafts, at a point where the prospect drillholes show there is 12 ft. of good surface clay, beneath which is 5 ft. of fairly hard sandstone, underlaid with a stratum of blue mud 10 ft. in thickness. This mud would be better described as "muck" and contains considerable water. Beneath the muck is a very hard gray sandstone, which is 26 ft. in thickness.

It will be necessary, in order to properly protect these shafts and make them reasonably dry, to line the upper portion of the excavation above the sandstone with concrete. I recall reading in *Coal Age*, some time since, an inquiry somewhat similar to my own, and remember that the discussion that followed developed some valuable points in respect to lining shafts with concrete, in passing through soft strata.

I regret having none of these copies of *Coal Age* at hand and shall very much appreciate any advice and suggestions that *Coal Age* and its readers may offer. What I desire to know is the best method to adopt in concreting the 27 ft. of strata overlying the hard sandstone.

Bicknell, Ind.

H. S. CONRAD, Manager,
American Coal Mining Co.

The inquiry to which this correspondent refers was published in *Coal Age*, June 16, p. 1054. We beg to refer to the reply to that inquiry, which is given on the same page and contains points of special interest, describing what is necessary in constructing a concrete lining extending from the hardpan formation to the surface, in sinking a shaft through soft strata. The same remarks will apply to the case cited in the present inquiry.

We would also draw attention to Letters 2 and 3, *Coal Age*, Aug. 4, p. 207, recommending and describing the method of constructing the concrete lining on the surface and permitting it to sink into the excavation as the work progresses. This method is often adopted, but its execution requires much care and experience to insure its success.

Letter No. 2, by Fred A. Krehbiel, describes briefly the method that was employed by his company, in sinking a mine shaft in Indiana. In that instance, the first 32 ft. of the shaft was lined with a concrete curb, which was constructed on the surface and sunk as the work of excavation progressed. We would suggest that this correspondent would do well to write to the Krehbiel Co., 1712 Marquette Building, Chicago, Ill., which makes a specialty of this class of work. By so doing, it may happen that much future annoyance and expense may be saved.

The advantage gained by building the curb, or lining, on the surface and allowing it to sink as the excavation proceeds is the avoidance of any temporary supports while sinking through the loose material. At times,

difficulty is experienced in preventing one side of the curbing sinking faster than the other, which causes the thing to bind fast. To remedy such an occurrence is always difficult and may prove impossible.

Recovering Outcrop Coal by Stripping

There are three beds of coal outcropping on our property; but one of these, in particular, is worthy of some consideration, in respect to what I am about to suggest. The seam is 6 ft. in thickness, and the length of the outcrop will approximate 5 miles. The land is of little value for farming purposes; much of it is still in undergrowth, never having been cleared for tilling. The average slope of the ground is about 10 per cent.

It has occurred to me that there is in most mining districts much of this outcrop coal that could be utilized if it would be practicable to recover it by stripping. Where the cover is less than 15 ft., the coal is probably of no value. There is, in this instance, however, a zone about 100 ft. wide that is overlaid with a cover varying from 15 to 25 ft. in thickness. It can be assumed that the coal lying in this zone has a fair market value. It is overlaid with a soft material known locally as "buckwheat slate," which is easy to dig but difficult to hold in underground mining. For this reason, the coal approaching the outcrop was not taken out in the mining of the seam.

The question I would like to ask is, Would it be possible to recover this outcrop coal with profit, employing for that purpose the steam shovel, such as is used in stripping operations? I may say that there are thousands of acres of such coal lands in Pennsylvania which have been left untouched when the mines were abandoned. It is possible, also, that much pillar coal left in the mine could also be recovered as the stripping progressed. In the present urgent demand for coal, cannot this class of mining be utilized and the coal be recovered at a profit?

CENTRAL PENNSYLVANIA MINER.

Ringgold, Penn.

We leave this inquiry with our readers, hoping for its careful consideration by those familiar with the conditions described and who can better judge of the quality of the coal that it is proposed to recover by stripping. There is no doubt but stripping operations have received a great impetus in recent years, by the development of the steam shovel.

The success of the operation will depend wholly on the quality of the coal to be recovered and the expense of placing it on the market. These conditions will vary in different localities. In the case cited by our correspondent, the fact that the land has no value for cultivation is favorable to attempting the recovery of the coal. This feature will not be true in many other localities, where the value of the surface may exceed that of the underlying coal.

Examination Questions

Indiana Firebosses' Examination, Held at Evansville, Sept. 27, 1917

(Selected Questions)

Ques.—(a) What is firedamp? (b) What is the lowest explosive point of firedamp? (c) What is the highest explosive point of firedamp? (d) What is the maximum explosive point of firedamp?

Ans.—(a) Firedamp, as its name implies, is any inflammable or explosive mixture of gas and air, as found in mine workings.

b. The lowest explosive point, or lower explosive limit of a firedamp mixture consisting of pure marsh gas and air, occurs when the proportion of gas to air is 1:13, or when the mixture contains 7.14 per cent. of the gas.

c. The highest explosive point, or higher explosive limit, of firedamp consisting of a mixture of pure marsh gas and air, occurs when the proportion of gas to air is 1:5, or when the mixture contains 16.67 per cent. of the gas.

d. The maximum explosive point of firedamp consisting of a mixture of pure marsh gas and air occurs when the proportion of gas to air is 1:9.57, or when the mixture contains 9.46 per cent. of the gas.

Ques.—(a) What is afterdamp? (b) What gases are found after an explosion of firedamp at its maximum explosive point?

Ans.—(a) Afterdamp is a variable mixture of the gases produced by an explosion of gas or dust in a mine. The afterdamp mixture consists chiefly of carbon dioxide (CO_2) and the nitrogen of the air, remaining after the oxygen has been consumed in the explosion. The afterdamp of an explosion frequently contains a considerable percentage of carbon monoxide, which results from the incomplete combustion that takes place in a limited supply of air.

b. An explosion of firedamp consisting of a mixture of pure marsh gas and air at its most explosive point produces carbon dioxide (CO_2), nitrogen (N), and water vapor (H_2O).

Ques.—(a) What is a dangerous atmosphere? (b) How would you proceed to extinguish a mine fire, at different stages of the fire?

Ans.—(a) A dangerous atmosphere is one that presents danger, either from its poisonous character or from its inflammable or explosive condition. Any atmosphere in which a person may be overcome, or one that is unhealthy to breathe, or one containing sufficient gas to produce a flame cap on a safety lamp is more or less dangerous and may prove fatal if its condition is not improved by the addition of pure air.

b. A gob fire caused by the spontaneous ignition of fine coal and slack in the waste may often be loaded out before it has attained dangerous proportions. At other times, such a fire may have worked back under a large quantity of waste and spread over an area that makes it impracticable to remove the burning material. When

this has taken place in large abandoned areas, the only practicable remedy is to seal off the fire so that it will smother itself. It often happens that a feeder of gas in the floor has become ignited and is burning under the waste. It may be possible, in such a case, to extinguish the flame by exploding a charge of dynamite close to the location of the fire.

An active mine fire that has gained some headway in a heading or room must be treated as the conditions will permit. The fire must always be approached from the intake side in order to prevent the men being overcome by the gases produced. Where a plentiful supply of water is available, it may be possible to extinguish the fire by this means. At other times, it may be necessary to seal off the heading or room in which the fire is located, by building an air-tight stopping in each opening leading to the place.

At times, it happens that a fire gains such headway that it is impossible to extinguish it in any other way than by flooding the mine, or at least that portion of the workings that is affected, if it is possible to isolate the fire by building strong dams capable of withstanding the pressure due to the head of water.

Ques.—(a) What is a safety lamp? (b) Describe the essential features on which a safety lamp is based.

Ans.—(a) A safety lamp is a lamp in which the flame is isolated from the outside atmosphere, by means of wire gauze, which permits the gas-charged air to enter and burn within the lamp, but prevents the flame of the burning gases from passing through the mesh of the gauze and igniting the gas outside of the lamp.

b. The essential features of a good safety lamp are the following: (1) To insure a good light and prevent the smoking of the flame, the air should enter the lamp at a point below the flame and be discharged in the upper part of the chimney. In other words, the circulation within the lamp should be ascensional.

2. For the further improvement of the illuminating power of the lamp, the flame should be surrounded by a strong clear glass and only the best quality of oil should be burned in the lamp.

3. To guard against the possible flaming of the lamp, or small internal explosions within the gauze being communicated to the outside atmosphere, the upper portion of the lamp chimney should be sufficiently protected by a double gauze, or a shield or bonnet that will efficiently restrict the discharge of the burnt air and gases at the top of the lamp, so as to maintain an extinctive zone in the upper part of the chimney.

4. For convenience of handling, the lamp should be portable and as light and strong as possible. Its construction should be simple and consist of few parts so framed together that the accidental omission of any one part will be readily detected.

5. For the purpose of testing for gas, the lamp should have a free circulation so as to insure the same gaseous condition in the combustion chamber as exists outside.

Coal and Coke News

For the Busy Reader

Coal companies are still hopeful of a revision of Government prices.

In New York City prices have recently been reduced by larger dealers from 10 to 40c. a ton on various grades.

An annual production of 20,000,000 tons of coal is being produced from the mines of Japan and Southern Manchuria.

The City of Pittsburgh is conducting drilling tests under public property to discover if the coal deposits there can be mined.

Dr. Garfield has announced the appointment of William J. Galligan, of Denver, as fuel administrator for Colorado, and of B. B. Gossett, of Anderson, for South Carolina.

New York City is confronted with a shortage of coal. Big distributing companies have been unable to get coal, and it was indicated in trustworthy quarters that there was no immediate likelihood of relief.

Doctor Garfield said recently that reports of a coal famine in Chicago were not borne out by official information, and that the coal on hand there, both anthracite and bituminous, is greater than a year ago.

Investigation has disclosed a dozen cases of hoarding by industrial concerns in the Middle West. It is the fuel administration's intention to remedy this by the suspension of shipments of coal to the hoarders.

In Italy the coal situation is now so grave that there is almost no coal for private consumption, and few furnaces will be lighted this winter in either Italian hotels or private houses. Even military operations are hindered.

To relieve the coal shortage in Ohio and Michigan the Fuel Administration has ordered all soft coal mines in Ohio and western Pennsylvania to ship the entire output of the mines on Oct. 29 to retail dealers in Michigan and Ohio.

In line with the policy adopted recently in regard to the Pennsylvania R.R., Doctor Garfield has directed that mines supplying the Baltimore & Ohio R.R. should see to it that a sufficient supply of coal be provided to the lines to prevent congestion.

City officials in Boston, Mass., contemplate the cutting off of current from all electric advertising signs and also from many powerful street lamps that consume a large amount of electricity. By taking this step a vast amount of coal can be saved.

Large numbers of men having been withdrawn from the mines by the first draft, officials are giving serious thought to the suggestion that in the next call exemptions be applied to industries instead of individuals. Every man drafted from the mining industry causes a shortage of 10 tons a day.

Receiving from \$6 to \$10 a day, many miners, particularly the foreign workmen, fail to take advantage of the prosperity that has come to them and show a decided disposition to lay down on their jobs. They argue that they earn as much now in one day as they formerly did in two, so why work all week?

During the first nine months of this year Canada's coal shipments from the United States have grown tremendously. To guard against a shortage in the United States Dr. Garfield has announced that for the next two months the Dominion will receive 2,000,000 tons of bituminous coal and 700,000 tons of anthracite.

Harrisburg, Penn.

William Potter, state fuel administrator, opened his office in the Bellevue-Stratford, Philadelphia, on Oct. 15. The office of the coal administrator for the City of Philadelphia, of which Francis A. Lewis is chairman, will be in the Commonwealth Building.

S. D. Warriner, president of the Lehigh Coal and Navigation Co., is quoted as saying that there can be no complaint that the coal producers have not strained every muscle to pile up an adequate supply of fuel this year. He also says that there is a total supply adequate to meet all needs if it were properly and equitably distributed. He recommends that the local committees of the state administrators set to work to stop the hoarding of coal, and that sale of retailers be controlled so that consumers who have sufficient coal will be unable to get more. Mr. Warriner states that it is not a question of production, but that coal hogs have jumped in and stocked up.

The independent operators state that the retail dealers are passing the blame on to them for the prevailing high prices, and that this is unjust. They claim that the Government allowed a differential of 75c. to the independent operators for a very good reason, and that had a flat rate been made for the railroad operators who own their mines and independent operators who work leased land, at least 25 per cent. of the anthracite production would have disappeared. The independent operators contend that if they had not been allowed an advance of 75c. they could not have remained in business. The reason for this is that many of the railroad coal mines own most of their coal land and their royalties on leased land are not so high as that paid by the independents.

The independent operators also state that the railroad mine-owning operators pay no royalty, they simply make a charge upon each ton of coal mined, to take care of the original investment. This, they contend, amounts to about 5c. a ton. The independents pay from 50 to 80c. per ton in royalties.

A report from Washington also states that trade bulletins or agreements, confidential or otherwise, will amount to nothing unless they are approved by the state fuel administrators and the fuel administration. This is the answer of Dr. Garfield, National fuel administrator, to the bulletin issued by the Pennsylvania Retail Merchants Association.

Dr. Garfield is quoted as saying that agreements between operators or dealers naturally will not be of value, as it is his duty to control distribution despite plans of others to the contrary.

Frank G. Wallis, of this city, head of the Wallis Coal Co., and president of the Pennsylvania Retail Coal Merchants' Association, said that the charge that there were ulterior reasons for the issuance of the circular by the association's secretary, Wellington M. Bertolet, was without foundation.

In the western part of the state the coal situation is quite acute and shows no betterment. It seems to be impossible to buy \$2 coal, a condition explained by the coal people as being due to inability to get enough coal to cover contract requirements by reason of a growing shortage of labor and also transportation difficulties.

The cold wave brought forth the first cries of distress from hospitals and school boards from the large cities, inquiring if coal companies with whom they had placed their winter's orders would be able to supply them when the winter was on in earnest. The operators contend that their inability to supply schools and hospitals at the present time is due to the railroads and the priority order for 100 per cent. car supply for Lake shipments.

The labor question in the soft coal fields, especially in the coke region, is growing more serious every day.

While Lake shipments are still continuing to receive preference, the mines along the Pennsylvania system which have no contracts with that road for fuel coal have been notified to supply coal, and in some instances as much as one-sixth of the output is said to have been required for the railroad. It said that about 6,000,000 tons

would be involved in this new arrangement, whereby the railroad becomes a preferred customer.

The State Compensation Board, in a decision in a mining case from Luzerne County, holds that an employer cannot take the initiative by summarily stopping compensation payments on the ground that he believes that an employee has recovered, but that "it is his duty to file a petition alleging the changed condition of the employee in respect to his injuries and then this averment must be followed up by such proof that the board can determine the truth of the same." The board also holds that it is the duty of the employer to go further than present opinions of witnesses.

"The burden rests on the employer to furnish the injured employee some employment that he can perform and thus present to the board the very best testimony as to the condition of the employee and his ability to earn wages. Of course, the employee must do his part. He cannot stand back and stubbornly refuse to accept a reasonable offer at the hands of his employer. In such a case it would become our plain duty to discontinue compensation entirely and wait until the employee yielded to reason, accepted a position and gave us figures for computing his partial disability."

The eighth year of the Wilkes-Barre mining school opened in the Y. M. C. A. building on Oct. 15, and on the same night the institute for mining men opened at Pittston. These schools have been a great success and enroll an average of 1000 men in the anthracite coal region. The school at Wilkes-Barre is one of the most practical graded courses in the region. These schools will take a man out of the mines who is unable to figure his own pay, and in two years give him enough to enable him to pass for assistant mine foreman in the state examination. If he goes one year more, he will be able to pass for foreman; if he will continue to the end of the course, besides a certificate he will receive a refund of all the fees he has paid during his study.

This mining course, in connection with the regular Y. M. C. A. work, makes it possible for a large number of men to get an education through night study who otherwise would always plod along without knowing anything about the why and wherefore of their daily occupation.

PENNSYLVANIA

Anthracite

Drifton—The shops of the Lehigh Valley Coal Co., where most of the repair work is done for the entire anthracite division, are being operated to their capacity since the outbreak of the war. A big new Clark engine has been turned out and 25 cars for the Facker colliery. Small locomotives are also being constructed.

Stripping contractors in this vicinity are having their equipment thoroughly overhauled so that everything will be in the best working order for the winter. Up to six years ago it was customary for most of the strippings in the Lehigh region to suspend during the cold weather, but conditions have changed to such an extent that they are idle only on extremely disagreeable days.

Girardville—Judge Moser, of Northumberland County, who specially presided in the case in which Mrs. Harriet Caddy sued the Harleigh Brookwood Coal Co. and was awarded \$3000 damages, reversed the verdict of the jury on Oct. 15 and Mrs. Caddy will get no compensation. Caddy was found dead, and it was contended by his wife that he was a victim of an electric shock, electric wires being near-by. The only evidence that the man came in contact with a live wire was his watch case, which was apparently turned black by the current. Judge Moser decided that the evidence was too slender to justify a verdict.

Hazleton—Justus Altmiller, has started boring for coal on the Reagan tract near Derringer, owned by the Markle Banking and Trust Co.

One part of the breaker of the Cranberry Creek Coal Co. will be used exclusively for the preparation of marketable coal from the culm banks.

A steam shovel has been removed from the Derringer to the Drifton colliery of the

Lehigh Valley Coal Co. where it will be used in loading culm into cars for market.

The G. B. Markle Coal Co. has announced a reduction of 50 per cent. in the rent of all company houses during the continuance of the war so that employees can buy Liberty bonds, and also to aid them in the present high cost of living. The company's output of anthracite shows a great increase even with a largely reduced force.

Wilkes-Barre—The war has caused the Lehigh Valley Coal Co. to recede from its policy of hiring men only. Miss Anna Stair has been taken on at the main offices and two other girls are working in other departments.

Martin Lavelle, of the Dorrance colliery, has invented an overwinding device which makes it impossible for an engineer to hoist cars from the mines over the tippie.

Yorktown—The Lehigh Valley Coal Co. washery, which has been idle for some time, has resumed on an extensive scale. Coal is being loaded that was untouched for years in the culm banks skirting the railroad tracks.

Shamokin—A jury in the Northumberland County court on Oct. 17 awarded \$7300 to Jacob Sebastian, 18 years of age, who was knocked down and dragged by a mine car while at work in the Locust Gap colliery of the Philadelphia & Reading Coal and Iron Co. more than a year ago. It was alleged that the boy became paralyzed as a result of the accident.

Carbondale—As a means of assisting its employees to combat the high cost of living, officials of the coal department of the Delaware and Hudson Co. have arranged to sell to the heads of families who are in its employ five bushels of potatoes at \$1.25 a bushel. These potatoes are now being dug from hundreds of acres planted last spring and cultivated during the summer at the expense of the company.

Pottsville—The Philadelphia & Reading Coal and Iron Co. has inaugurated operations at its new washery at Reevesdale. It is planned to have a capacity of 1000 tons daily. The culm banks in this vicinity are so large that it will require about six years to remove them. During this time the company will sink shafts, and will operate the washery as a breaker before the banks have been exhausted.

Bituminous

Indiana—Two large coal land transfers were recorded here last week. The first was the Clearfield Bituminous Coal Corporation to the Jefferson and Clearfield Coal and Iron Co. for 49 tracts of coal land in Young Township for a consideration of \$641,592.80. The second transfer was from James W. Mack, trustee, to the Yellow Creek Coal Co. for a tract in Pine Township for a consideration of \$23,401.28. The latter is the opening up of a new field of Indiana County coal.

Homer City—The Manufacturers' Coal Co., which recently leased the coal underlying the McCray farm near Meco, has started developments on the property. Work is being rushed on the drifts, buildings, etc. The company is controlled by a large manufacturing concern in the East who will use the entire output of the mine.

The contractors have begun work on the tippie and other buildings at the new operation of the Ferrier Run Coal Mining Co. on the Homer City branch of the Pennsylvania R.R. The company expects to begin shipments about the middle of November.

Dubois—The wagon loaders of Jefferson, Clearfield, Indiana and other central Pennsylvania counties met in Dubois recently and decided to appeal to the Public Service Commission in an effort to have the Buffalo, Rochester & Pittsburgh Ry. furnish cars for wagon loaders along their lines. This service was discontinued last July. There are over 100 wagon mines located along the Buffalo, Rochester & Pittsburgh.

Sharon—This city is in the grip of the fuel famine and has been forced to seize cars of coal billed for the Great Lakes region, while officials of Youngstown, Ohio, followed suit. An injunction, however, was granted against the Youngstown officials and they are restrained from seizing shipments billed for other points.

Clearfield—The Clearfield County Committee of Public Safety passed a resolution on Oct. 17, setting forth that the production of coal is being greatly hindered by liquor sold to the miners. The local chairman of the committee was directed to take up with county court a proposition to close all saloons and wholesale liquor houses in the county for the period of the war.

Through the State Committee on Public Safety an effort is to be made to get in communication with the judges in the adjoining counties where coal is mined and ask them to take similar action.

Johnstown—John C. Cosgrove, head of the mining firm of Cosgrove & Co., announces that the mine workers employed by his concern have already subscribed for \$25,000 worth of Liberty Bonds and expects this sum to be doubled by the time the campaign is closed.

Connellsville—While it is believed the new priority order calling for 100 per cent. car allotment will materially help the coke situation, no appreciable improvement is, or can be, expected until there are decided changes in traffic conditions outside of the Connellsville region.

WEST VIRGINIA

Fairmont—Since the strikes in Kentucky and Tennessee many miners have come into the West Virginia fields seeking labor and found plenty of operators begging for their services. The coal situation in Fairmont is said to be about the same as in the extreme southern part of the state—plenty of men and orders, but few railroad cars to ship the fuel to destination.

An example of the high earnings unskilled coal-mine workers of the Fairmont district are now receiving was cited in the case of Tony Potosh, a Rumanian, employed at the Grant Town mining plant of the New England Fuel and Transportation Co. During a two weeks' period this month he earned \$103.60. These wages, it is said, represent the average earnings of unskilled labor at that mining plant. The coal is mined, drilled and shot by company labor and men like Tony are employed to shovel it into the cars.

Charlestown—Greenbrier County, situated almost in the heart of the New River and Winding Gulf coal fields, is facing a fuel shortage. It seems almost impossible to get New River coal in Greenbrier County.

KENTUCKY

Lexington—E. S. Helburn, formerly mayor of Middlesboro, Ky. after a trip through the Bell County coal field, returned with a statement that at least 25 small mines in that section had not resumed operations. The Government price schedule, he stated, made it impossible for them to operate at a profit. Estimates are to the effect that there are 150 of the small mines in the section affected by the strikes which have not resumed production.

Exemption boards in the eastern Kentucky section have taken up the question of securing an order for exemption of men employed in the coal mines whose services are invaluable. It is stated that machine men from numbers of the mines have been taken in the National Army draft and that efforts will be made to obtain their release from the cantonments to which they have been sent.

Louisville—The North Jellico Coal Co. at Louisville purchased \$75,000 Liberty Loan bonds in the local campaign, which exceeded the minimum allotment of about \$8,000,000 by some four millions. All the employees of the Harlan Coal Co. were represented in the purchases.

OHIO

Cincinnati—A committee of local business men is to be appointed by Homer F. Johnson, fuel administrator for Ohio, to co-operate with him and with the authorities at Washington in handling the retail coal situation. It has been indicated that a retail price may be fixed locally unless the situation adjusts itself soon, as coal is not available at prices near those recently fixed by the Government. Prorating of orders may also be resorted to, in order to prevent hoarding and to distribute orders according to the supplies in the hands of dealers.

The early receipt of a river shipment of 20 barge-loads of coal, amounting to from 2,500,000 to 3,000,000 bushels, on a "wave" created by manipulation of the Government dams on the Ohio, is expected to help the local situation somewhat, although this amount of coal, according to dealers, is not sufficient to go very far.

The development of a tract of 1500 acres of land on the Cincinnati Southern R.R., in order to determine whether it bears coal in quantities profitable to mine, has been suggested as a means of helping out the city in the fuel emergency. The city owns the railroad, and also owns the tract in question, which is said to have a small vein of coal on it.

Martin's Ferry—It is reported that the Wegee mine of the Pittsburgh-Superior Coal Co. had been sold to the Goodyear Rubber Co., of Akron. The consideration is said to have been \$125,000. The mine employs over 100 men.

Gallipolis—The largest shipment ever made on an artificial rise left here recently for Cincinnati, Ohio, and Louisville, Ky. Fourteen towboats, with approximately 3,000,000 bushels of coal in their tows, left the Gallipolis pool to relieve many cities south of here, which have been sorely in need of coal for weeks.

Canton—The city authorities have confiscated 1000 tons of coal owned by the Central Power Co., which supplies the city with electricity, and will dispose of it at \$5.60 a ton.

Moxahala—The Baltimore & Ohio tunnel near this place caved in Oct. 19, stopping all traffic for four or five days. This had the effect of closing mines at Moxahala and Glouster.

INDIANA

Bloomington—Edwin Corr, of this city, member of the Indiana Public Service Commission, declared in a recent statement that the time had come for the Government to take over and operate all coal mines. This statement was made in connection with a fruitless effort of Mayor John G. Harris to get coal for Bloomington. He used the long-distance telephone to call up mine owners in Indiana and Kentucky, begging for a rush shipment of 25 cars of coal, but in every case was informed by the operators that they could not take the order.

Evansville—A new short line to the coal fields around Dawson Springs, Ky., will shortly be completed, according to an announcement of J. B. Rhodes, freight agent of the Illinois Central here. This line is from Providence to Dawson Springs, Ky., a distance of 25 miles.

ILLINOIS

Murphysboro—With the coal famine threatening this city and surrounding territory, the Gus Blair mine has been compelled to shut down on account of no water, and the M. & O. R.R. is hauling water for several miles on its line on account of the mines' ponds going dry. The same condition prevails at many mines throughout the Williamson and Franklin County field.

Herrin—The first instance on record in the mining history of Illinois of a woman working as a check-weigher on a tippie of a coal mine came under the notice last week of State Mine Inspector H. T. Bannister, who was called to the Big Muddy Coal Co. at Cambria and found a woman on the job. He immediately had her removed on an old act of the mining laws of the state prohibiting women at work above or below in the mining of coal.

Springfield—Frank Farrington, president of the Illinois United Mine Workers, has been named as beneficiary of Peter Confeliato, who has enlisted in the army. If he is killed or dies in the service, Farrington will receive Confeliato's salary for six months.

Except when production is hindered by labor disturbances the Chicago & Alton Railroad Co. is moving 6000 cars of coal daily on its three divisions. Officials say the volume is the heaviest in the history of the road.

Foreign News

Rotterdam, Holland—Foreign steamships will not be supplied with bunker coal in Dutch ports, according to the "Maasbode." This measure, it adds, will be taken, owing to the scarcity of coal in Holland.

Personals

Rankin Eastin, who has been superintendent of the Coll Coal Co., at Madisonville, Ky., has resigned. He has secured mineral rights at Nebo, Ky., and will develop mines of his own.

W. M. Roy, formerly with the Powell's Valley Coal Co., Blackwood, Va., has been made superintendent of the Crane's Nest Coal Corporation at Crane's Nest, Va. He will enter upon his duties at once.

David W. Kuhn, of Pittsburgh, former receiver of the Pittsburgh-Westmoreland Coal Co., and president of the Dunkirk Coal Gas Co., was recently appointed head of the fuel board for the Pittsburgh district.

James A. Steese, of Mount Holly Springs, Penn., has been appointed by the Governor, as chief of the Bureau of Mediation, to succeed the late Patrick Gilday, a former president of the Central Bituminous District of the Mine Workers.

D. Lloyd Hartman, of Mifflintown, Penn., has been appointed by Governor Brumbaugh to be chief of the Bureau of Statistics and Information in the Compensation Department. Mr. Hartman succeeds Paul N. Furman, who resigned last summer.

Malcolm McDougall, chief mine inspector for the Pennsylvania State Workmen's Insurance Fund and in charge of the state office in Johnstown, has resigned to become general manager of the Thorne & Neale interests, with headquarters in Pottsville.

W. A. Hull, Hazard, Ky., has been made general manager of the Virginia Iron, Coal and Coke Co., Kentucky division. He will represent the company's interests in eastern Kentucky. Mr. Hull is prominently identified with the Kentucky-Virginia coal fields.

D. A. Patterson, of Tom Creek, Va., was named as president of the Southwestern Virginia Coal Operators' Association, just organized at Norton in Wise County, where the first meeting was held recently. Another meeting has been set down for Wednesday, Oct. 31.

L. A. Shoemaker, formerly of the Whitely Jellico Coal Co., Mountain Ash, Ky., has been chosen as general manager of the Whitely-Elkhorn Coal Co., at Sergeant, Ky. He has entered upon his duties. Mr. Shoemaker is well known among the operators of eastern Kentucky.

James Neale, of Thorne, Neale & Co., of Philadelphia, Penn., has been selected by the anthracite operators to represent them on the staff of the fuel administrator. Mr. Neale's position will be to the anthracite industry what Rembrandt Peale's relation is to the bituminous operators.

Joseph Kennedy, of Elizabeth, Penn., has resigned as superintendent of the Patterson mine of the United Coal Corporation, effective Nov. 1, to accept a similar position with the Diamond Coal and Coke Co. at a new mine shaft it is sinking up the Allegheny River from Pittsburgh, Penn.

Thomas B. Powell, civil and mining engineer, of Ashland, Ky., is now vice president and general manager of the recently organized King Elkhorn Coal Co. Mr. Powell is well known as an engineer and was at one time employed by the City of Richmond, Va., as engineer on road work.

Warren R. Roberts, president of the Roberts & Schaefer Co., engineers and contractors, Chicago, was called to Washington recently by the Government and has accepted a major's commission under the Quartermaster General as an executive officer in charge of new emergency construction work for the duration of the war.

Frank P. Fisher, of Springfield, Ill., formerly connected with the Sangamon Coal Co., has been appointed manager of the Carlinville coal mine. Plans have been made for increasing the production of the mine. Fisher succeeds W. G. Bartels, who has been president and manager for several years. Mr. Bartels will retire after having been active in the coal industry for 43 years.

C. P. McDonald has been made superintendent of the Stone Gap Colliery Co. at Glamorgan, Va. He succeeds R. I. Cawthorne, who was promoted to resident manager. Mr. McDonald entered upon his duties Oct. 18. He is well and favorably known in the southwestern Virginia field, where he has been connected with several of the foremost operating companies in that section.

Obituary

William Horan, of Centralia, Penn., one of Centralia's best-known citizens and a former Councillman, died Oct. 16 while at his work at the local colliery. He was 61 years of age. Death was due to heart disease. He is survived by a widow and seven children.

Trade Catalogs

Second-hand Rails, Locomotives, Cars, Steam Shovels, etc. Walter A. Zelnicker Supply Co., St. Louis, Mo. Bulletin No. 220.

Form P Induction Motors, Squirrel Cage Type. Crocker-Wheeler Co., Ampere, N. J. Bulletin No. 182. Pp. 4; 9 x 11 in.; illustrated.

Duplex Piston Pattern Pumps. Worthington Pump and Machinery Corporation, 115 Broadway, New York. Bulletin W-308. Pp. 52; 6 x 9 in.; illustrated.

Outside Packed Plunger Pattern Pumps. Worthington Pump and Machinery Corporation, 115 Broadway, New York. Bulletin W-400. Pp. 32; 6 x 9 in.; illustrated.

"Better Ventilation—Lower Productions Costs" is the title of a pamphlet issued by the Bemis Bros. Bag Co., St. Louis, Mo., which treats of the use of Flexoid tubing in mine ventilation. Pp. 26; 6½ x 9½ in.; illustrated.

Industrial News

Washington, D. C.—Word has gone out to coal operators throughout the country, from the Fuel Administration, that the Government, in any coal crisis that may develop during the war, intends to requisition one-tenth of the coal supply at the mine, for use of the consumer.

Louisville, Ky.—Coöperation of the Louisville Board of Trade looking toward completion of the project for canalization of the Ohio River has been pledged. It has been declared that if this work had been finished last year the city would have saved \$1,000,000 in its coal bills.

New York, N. Y.—Albert H. Wiggin, the state fuel administrator, has opened offices in the Chase National Bank Building, 61 Broadway. Mr. Wiggin has announced the appointment of an advisory committee and several county fuel administrators, who will look after the fuel situation in their respective counties.

Charleston, W. Va.—Sixty-one resident corporations, 27 of which were coal-mining companies, were chartered in the month of September in West Virginia, according to the report of Secretary of State Houston G. Young, filed with the State Auditor. Six nonresident corporations received charters and 11 foreign corporations were authorized to do business in the state.

Wheeling, W. Va.—Petitions have been filed with Referee in Bankruptcy J. William Cummins for permission to sell the Mound City coal mine at Moundsville, which has been in a receiver's hands for the past few years. A decision on the petition will be handed down later in this matter and arguments in the case will be heard on Oct. 29 in the office of Referee Cummins.

St. Louis, Mo.—Announcement has been made that the Government plans to construct 24 barges and four towing steamers, capable of navigating the low-water stretches of the upper Mississippi to be in use from St. Louis to St. Paul, carrying coal up and iron ore down. The vessels will be constructed this winter at a cost of \$3,335,000 and will be leased to private shippers with the privilege of purchase.

New York, N. Y.—The Public Service Commission has handed down an order requiring the Interborough Rapid Transit Co., 165 Broadway, to maintain a coal reserve of at least 4000 tons in the bunkers at its power house at 74th St. and the East River. Power for the operation of its elevated lines is generated at this plant, and the order was made to prevent any shut-down of the elevated system due to coal shortage.

Hazard, Ky.—The war situation has caused a shortage of men in most of the operating mining plants in the Kentucky River district of Kentucky—immediately surrounding this city. An effort is being made to prevail upon the senators and congressmen of the state to ask Federal aid in restoring to the mines those who have been drafted into the service. As a result of the shortage this section will show a striking decrease in its output.

Philadelphia, Penn.—A meeting of the soft-coal operators and jobbers interested in the formation of the Philadelphia Wholesale Coal Trade Association, to promote the interests of the trade, was held on Oct. 17. By-laws were adopted, but the full organization and election of officers were postponed until next week to permit a fuller discussion among members of the trade. As outlined at the meeting, the local body is to be made a constituent unit of the National Coal Jobbers' Association, with headquarters in Chicago.

Toledo, Ohio—Loadings at the docks of the various railroad companies have not been quite as large as during some previous weeks. For the week ending Oct. 19, the

Hocking Valley docks loaded 156,000 tons as compared with 170,000 tons the previous week. The total loaded by these docks since the opening of navigation is 3,866,896 tons. During the same week the Toledo & Ohio Central docks loaded 96,000 tons, as compared with 97,000 tons the previous week. The total loaded since the opening of navigation is 1,878,699 tons.

Charleston, W. Va.—The West Virginia Public Service Commission has allowed the application of the railroads operating in West Virginia for permission to increase intrastate class freight rates 15 per cent., the order to stand for one year or until a further order of the commission. The application was refused as to commodity rates. The action of the commission was in line with increases already granted by the Interstate Commerce Commission as to interstate business, and by a number of states as to their intrastate business.

Harrisburg, Penn.—Governor Brumbaugh, on Oct. 17, announced the following appointments: To Study Health Insurance—William Flinn, Pittsburgh; William Draper Lewis, Philadelphia, and Dr. J. B. McAllister, Harrisburg. To Investigate Old Age Pension Systems—James H. Maurer, president of the State Federation of Labor, Reading; Edwin C. Gries, Philadelphia; Davis S. Indium, Ardmore; William H. Brown, Philadelphia; Justice Emory A. Walling, Erie; Justice Robert S. Frazer, Pittsburgh; Harry W. Semple, Philadelphia.

Cincinnati, Ohio—There was great interest here in the convention of the Ohio Valley Improvement Association at Evansville, Ind., on Oct. 24 and 25, a large Cincinnati delegation, headed by the mayor and including among others, Col. Lansing H. Beach, in charge of this section of Ohio River improvements, attending. It is declared by coal men that with but four additional dams a 9-ft. stage the year around would be accomplished on the Ohio River from Pittsburgh to Cincinnati, making it possible to move coal steadily. The completion of the work will be urged.

Grafton, W. Va.—The Grafton Coal Operators' Association, which includes coal operators in Preston and Taylor Counties, West Virginia, has recently been organized. The officers are: President, Thomas Murphy, Austen, W. Va., superintendent of the Gorman Coal and Coke Co.; vice president, George S. Brackett, Flemington, W. Va., superintendent of the Pittsvelt Coal Co.; secretary and treasurer, H. R. Bissell, Independence, W. Va., general superintendent of the Preston Coal Co. Regular monthly meetings of the association will be held at Grafton the first Thursday of each month.

St. Louis, Mo.—Immense purchases of coal lands in central Illinois which have been in progress for some time are now understood to be in the interest of the Standard Oil Co. The transfer a few days ago of the property of the Carlinville Coal Co. to Thomas Williamson, of Edwardsville, attorney for the Standard Oil, is looked upon as confirmation. Nominal consideration of \$25,000 was named in the deed. The Standard Oil's primary purpose, it is understood, is to safeguard its own coal supply. At its Woodriver plant it uses two trainloads of coal a day and at its plant at Whiting, Ind., twice as much.

Oklahoma City, Okla.—Chief Mine Inspector Edward Boyle has just issued his annual report for the fiscal year ending June 30, 1917. This report shows that during the year, Oklahoma produced a total of 3,861,697 tons of coal of all kinds, which is an increase of 811,038 tons over the production for 1916. In 1917 a total of 6635 miners was employed and their net earnings amounted to \$646.06 each for the year. There were 40 fatal accidents during the year and 228 nonfatal accidents. The report shows that there has been a gradual increase in machine-mined coal, although in some of the mines in Oklahoma it is practically impossible to use machines.

Covington, Ky.—Proceedings in the case of Thruston Ballard, of Louisville, and others, against the Federal Coal Co., in which the plaintiffs seek appointment of a receiver for the concern and an interlocutory injunction, are in progress before United States Judge A. M. J. Cochran. Involved in the proceedings are 19 coal mines in Bell County, Kentucky, while holders of bonds aggregating more than \$1,000,000 and creditors with unsecured claims of more than \$800,000 are interested as defendants in the action. It has been disclosed that there is much friction between the Executive Committee, composed of A. G. Stith, M. S. Barker, both of Louisville, and T. R. Preston, of Chattanooga, Tenn., and the trustees. The Federal Coal Co., organized after failure of the Continental Co., is operating the properties.

Market Department

GENERAL REVIEW

All-rail shipments to New England increasing. Decided shortage of fuel in the Middle West. Unauthorized strikes in Illinois and Indiana upset the market.

Anthracite—Conditions in the anthracite trade throughout the past week have been somewhat more stable than previously. Throughout New York City and the country surrounding it, conditions are serious and the demand increasing. This is possibly due to the cooler weather existing and to be expected. Much of the coal which formerly reached the lower ports for transshipment to New England and elsewhere is now moving all rail on account of the scarcity of shipping and the high freight rates. Several of the anthracite producing roads have been practicing short rail hauls in order to alleviate the car situation. Various local fuel committees in the larger consuming centers have been appointed, and the new retail prices have either already been announced or will be so announced shortly. The peculiar situation existing in this respect is that almost every dealer has his own individual price, no two dealers agreeing on the same sizes or grades. All sizes of anthracite are in heavy demand, and few retailers are enabled to keep up with their orders, many being several weeks and even months behind on deliveries. In most instances, consumers are not overparticular about what kind or size of coal is furnished.

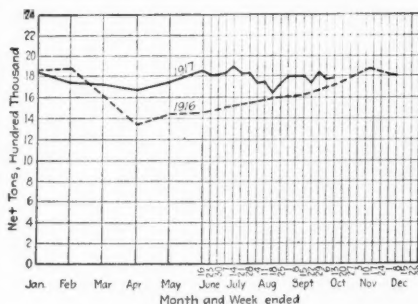
Bituminous—The outstanding feature of the bituminous market is as heretofore that the supply is not equal to the demand, particularly in the steam trade. Throughout a large portion of the country, particularly in the states of Ohio, Indiana, Illinois, Michigan and Missouri, steam users are in many instances working on a hand-to-mouth basis, and in many cases public utility plants and others have been compelled to shut down for a few days at a time on account of lack of fuel. Street car service has in many cities been interrupted for many hours for this reason. On the other hand, certain coal consumers with contracts made prior to the fixation of prices by the Government have been accumulating stocks in possibly greater volume than ever before. In some instances, these stocks of bituminous coal have been piled upon the ground so deep that spontaneous combustion has resulted, and fires in stock piles arising from this cause are by no means uncommon. Unauthorized strikes of miners occurred in the southern Illinois-Indiana mining region and put most of the mines idle for a few days. The full effect of these strikes will not be felt until the coal which was in transit from the mines to the consumers has been delivered. Occurring at a time when practically no stocks were on hand and when most steam users were depending upon a day-to-day supply for fuel, the cutting off of this supply at the source will have havoc with the consumer. These strikes have, however, been ended, and it is hoped that the producing end of the trade will now settle down to pursue the even tenor of its way so far as car supply will permit. This car supply throughout the bituminous mining regions in general has been somewhat better during the past week than previously. A definite rumor also exists in the Pittsburgh region that the Government will shortly revise its mine price of coal upward 75c., this amount to include increased margin to the producer, increased wages and brokerage, the latter to be paid by the producer rather than the consumer.

Lake Trade—The Lake trade continues in heavy volume, but not quite as heavy as previously. This volume will probably decrease from now on until the close of navigation. It is strongly believed that the close of navigation, which will take place in about six weeks, will do much to relieve the fuel stringency, particularly in Ohio, since the coal now moving to the Northwest will then be released.

A Year Ago—Rumors of increase in anthracite circulars and situation resembles a strike market. Illinois coal shipped into Eastern districts. Active bidding among steel interests for Pittsburgh coal forces prices up to prohibitive levels for other consumers. Unprecedented high prices in Middle West fails to restrict buying.

COAL PRODUCTION

A slight increase in bituminous production occurred last week. The total output, including lignite and coal coked, is estimated at 10,702,701 net tons, a gain of 0.7



per cent. over the week of Oct. 6. The average production per working day was 1,783,783 net tons, an amount but little in excess of the daily production at this season last year.

The week's production of beehive coke is estimated at 689,918 net tons, an average per working day of 114,986 tons.

CARLOADS OF COAL AND COKE ORIGINATING ON PRINCIPAL COAL-CARRYING ROADS

WEEK ENDED:

Sept. 22 Sept. 29 Oct. 6 Oct. 13

Bituminous shipments, 144 roads	183,090	192,260	186,752*	188,153†
Anthracite shipments, 9 roads	37,588	42,361	42,362	42,824
Beehive coke shipments, 4 roads	13,643	14,283	13,561*	14,163†

* Revised from last report. † Subject to revision.

The principal factor limiting production remains the shortage of cars. In the week ended Oct. 6, losses from this cause, while smaller by about 2 per cent. than during the preceding week, were 10.4 per cent. of the full-time capacity. The car situation improved notably in Indiana and to a lesser degree in Ohio, in both of which states losses from this cause have been severe. Little change was reported from Pennsylvania and West Virginia. No additional reports have been received by the Geological Survey of mines forced to close down under the present scale of prices. No mines reported lack of orders as a reason for closing down.

BUSINESS OPINIONS

Dun—With the steadily widening influence of the war, business encounters many new problems and obstacles, and not all reports regarding its condition are of the same tenor. But with the main trend continuing in the right direction, there are more points of gain than of loss in the general situation, and the position of trade and industry has not been measured by the recent action of the securities markets. Where the outlook has been made clearer by the partial or complete removal of doubts about commodity prices, there has come an immediate strengthening of sentiment and some revival of activity, and where other uncertainties have been lessened or eliminated, progress has been resumed with vigor. Yet of the competitive and excited bidding which was so conspicuous a feature a year ago, there is now a wholesome absence and it is highly reassuring that, while many buyers operate more freely and with greater confidence, conservatism shows no abatement.

Bradstreet—Trade reports are rather more irregular. Wholesale and jobbing trade is good and compares well with a year ago in value if not entirely in volume, but there is evidence of more caution as regards distant buying, and retail trade reports are a trifle slower. In manufacture and industry reports still point to activity, limited only by supplies of fuel and labor, but exceptions to this are noted in the Pacific Northwest, where strikes still retard work in lumbering and shipbuilding, and at spring-wheat milling centers, where

millers have slowed down capacity to allow of wheat hitherto held up by farmers reaching Eastern millers. Best reports as to wholesale trade come from the Northwest, the Central West and South, with less satisfactory advices from Atlantic and Pacific Coast cities.

American Wool and Cotton Reporter—Medium and low wools were the feature of the week's buying, but fine wools were not neglected. The medium wools were active on account of heavy orders for army cloth. The hesitancy in buying fine wools was due to the prospect of Australian wools coming to this country.

Marshall Field & Co.—Current wholesale shipments for the week are largely ahead of the corresponding period of last year. Food sales for both immediate and future delivery are greater than the heavy volume in the same period of a year ago. The number of customers in the market during the week has not been quite as large as in the corresponding period of last year. Collections are strong.

Atlantic Seaboard

BOSTON

Conditions unparallelled. Little hope of improvement. No spot coal. Anthracite situation alarming.

The conditions in New England today are without parallel. In some localities shortage in supply is visible. The present-day receipts are absolutely insufficient to accomplish any accumulation in stocks, and only in remote cases are consumers able to supplement their storage.

There apparently is little hope for the situation unless most drastic action is taken towards diverting substantial shipments to New England. This is only a forlorn hope, because in view of approaching winter weather, transportation conditions both rail and Tidewater will average around 25 per cent. less than the summer movement.

At Hampton Roads the loading situation is deplorable. An analysis of this situation would indicate there is enough coal running to, and standing at the three loading terminals, but the difficulty seems to lie in the matter of berth room.

A feature of the market which is most pronounced by its absence, is spot coal. There is none for application upon the Government price, and all shipments are being confined to contract commitments.

As heretofore reported the United States Shipping Board has commandeered all steamers of 2500 tons D. W. capacity, and over, and rates from loading points to New England ports have been established. The terms governing lay days, and demurrage, have been materially changed. It is understood the intention of the Shipping Board is to operate on the basis proposed for 90 days. There are surely many inequalities in the arrangement, and New England has been obliged to submit, feeling and believing, that so doing was the only means to insure supply by regular steamer channels. The cost of this arrangement to New England industries means an expense of many thousands of dollars over normal.

The condition of the marine freight market, irrespective of Government regulation of steamer tonnage, remains fairly strong. There is perhaps less chartering demand which, of course, is due to slow loading dispatch, but rates are unaffected, and rule at \$3 per ton Hampton Roads to Boston.

The local retail committees are gradually being completed. In the case of Boston, it is not expected any change will be made in existing retail prices.

The anthracite situation is becoming alarming. Several weeks ago this situation did not appear to be as serious as that in bituminous, but with the rulings the New England coal committees have imposed, severe hardships will inevitably be experienced in certain localities.

NEW YORK

Anthracite conditions remain serious with an increasing demand. Much of the coal formerly coming here for transshipment to New England is now being sent direct because of the high water freight rates. De-

mand for barley easy. The bituminous situation practically unchanged. Producers see no ray of light and are losing their employees. Car supply bad.

Anthracite—Some jobbers believe that the amount of coal coming to this market shows a slight improvement, but even this belief is not general and does not indicate that general conditions are any better than they have been for some time. Both wholesale and retail dealers realize that the market is in for a serious winter. The demand is increasing and with nearly everybody looking for coal and the local yards in most cases having clean bins and with other nearby sections of the country in apparently no better condition, there is small chance of there being a large surplus available here, even after the shipments to the West have been cut down considerably.

Wholesale dealers are not taking on any new customers, having all they can do to take care of their regular trade. Some of the latter complain of the treatment they are receiving, claiming that the companies from whom they purchase nearly their entire supply have not taken care of them as they should have done. The companies, on the other hand, say they have sent much of their output coming to this harbor to dealers "up the Hudson."

Shipments to New England, reports have it, are much heavier. Much of the coal formerly coming here for transshipment by water is now being sent direct because of the heavy water freight rate and the scarcity of bottoms.

The retail situation shows no change in regard to prices, but the conferences held last week promise an early solution of the difficulties of the trade. It is not expected there will be any great reductions.

As previously stated, many retail yards are bare of coal and what supplies are received are applied to outstanding orders. With coal-consuming temperatures here, the demand has increased for coal in small lots but there is none to be had notwithstanding the Government statistics showing that New York has been getting its share of the production. Consumers in the tenement houses who make their purchases by the pail are likely to suffer more this winter than the more fortunate person who lives in a house where coal can be stored. Cellar dealers are having difficulties in securing coal sufficient to take care of their trade, and with receipts far below requirements there is not much chance of their getting coal in much larger quantities.

No one of the three sizes, egg, stove and chestnut, can be picked up freely by the spot buyer. Pea coal is about as scarce.

The small steam coals are tightening, barley being the only one to be gotten easily. Buckwheat No. 1 is hard to find, but quotations do not show any large advance. Rice is scarce with a good demand.

Current quotations, per gross tons, f.o.b., Tidewater, at the lower ports, are as follows:

	Circular	Individual
Broken.....	\$5.95	\$6.70
Egg.....	5.85	6.60
Stove.....	6.10	6.85
Chestnut.....	6.20	6.95
Pea.....	4.70	5.45
Buck.....	3.95@4.65	5.50@5.75
Rice.....	3.40@3.60	3.70@4.00
Barley.....	2.90@3.15	2.75@2.90
Boiler.....	3.15@3.30	

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—This market continues in the same condition with regard to spot coal as it has been for several weeks. There is practically none to be had here and the outlook is not promising. Producers see no chance of improvement unless it be in better car supply and a readjustment of prices. With the demand continuing heavy from the West and New England and the railroads filing their claims for priority of shipments there is not much chance for the consumer who is not protected by a contract. Those who are so protected are not, as a rule, getting all the coal they need and reports are heard frequently of this or that mill or factory shutting down on account of the lack of fuel.

No word has yet been heard from Washington regarding a change in prices for Pennsylvania and nearby coals that come here. Producers are discouraged and see no ray of light. They are losing their employees because of no work, due in most part to the poor car supply which has been extremely bad along the B. & O. and

not much better along the Pennsylvania, except to those having railroad contracts. The men are leaving the mines for better jobs in other industries and many of them for good.

Jobbers here, unless secured by contracts with miners, are handling little coal. There is very little free coal coming to this market and boats have to wait for days at a time before being loaded.

Shipping is slow because of the lack of bunker supplies and as stated previously, many of the vessels are going to other ports for fuel.

PHILADELPHIA

Anthracite trade a trifle calm. Short hauls to help car situation. Local fuel committees appointed. Car situation serious. Heavy demand for all sizes. New retail prices. Almost all steam sizes active. Bituminous not equal to demand. No spot coal yet. Unimproved car supply. Still hope for price adjustment.

Anthracite—Compared with the two previous weeks the last one has had some elements of quiet. The retailers were called upon by the Fuel Administrator for so much data regarding shipments, prices, margin of profits, etc., that in their anxiety to furnish the information in the desired form they fraternized a great deal with the other dealers in order to compare methods. This bringing together of the retailers had a good effect on more than one chronic pessimist, who until he found his competitors also had coal troubles, felt that the shippers had been discriminating against him. In addition a week of mild weather quieted the buying public somewhat. This was in sharp contrast with the panicky feeling prevailing previously. However, with the weather again turning cold another rush is expected.

Recently the president of one of the largest mining companies assured the press and public that there is no actual danger of a coal famine and to use his word, "hysteria" is the most serious thing to be contended with at this time. He points out that it is necessary for the retailers to properly distribute their receipts to the householder and to avoid helping consumers who lose their heads and are trying to store coal beyond their seasonal requirements.

Shipments into this territory via the Pennsylvania R.R. are showing some improvement, with prospects of a continuance. Shippers report receiving more P. & R. cars, which is accounted for by the increased number held strictly to service in the shorter hauls. It would appear after numerous conferences on the part of the operators that they are going to gain greater car efficiency and protect their production by reducing the long hauls which keep equipment off the line from five to six weeks, particularly on consignments to far Western points. Curtailing shipments of anthracite into regions where soft coal is produced is likely to be made effective shortly. Such shipments are regarded as being detrimental to the welfare of the country.

To aid Philadelphia dealers in obtaining sufficient coal and to hasten its delivery the Philadelphia Coal Exchange has appointed a committee to cooperate with the local fuel administrator. The State Fuel Administrator is also rapidly appointing chairmen of fuel committees for the outlying towns.

At the present time the Lehigh Valley R.R. is suffering from an inadequate car supply and ask all shippers so far as possible to confine Lehigh Valley cars to line points. This causes a hardship to some good customers off the line. The most serious situation is that of the Pennsylvania R.R., which has placed such drastic embargoes on shipments to so many points that we cannot believe they will be effective for any length of time. There are reports of serious congestion of coal cars at a number of junction points and some collieries complain that they have not received any cars for shipment to Pennsylvania R.R. points for a week. There are dealers along the line of that road located in towns included in the Philadelphia territory who are having their coal delivered to the nearest point on the P. & R. Ry. tracks and hauling the coal at a great additional expense from the cars to the cellars of their customers.

There is no abatement in the demand for the various sizes. Dealers continue to express their willingness to accept all of any grade or size that can be shipped. Broken for domestic use is now unheard of and no dealer has the temerity to ask for a car of it. Egg does not improve to any great extent and stove loses none of its popularity. Chestnut is probably being shipped more freely, but there is a ready market for every car. No shipper

is willing to venture that the production of pea will equal the demand before spring. One large retail firm, by newspaper advertising, is offering No. 1 buckwheat coal at \$6 delivered, to be used as a substitute for pea. While the use of this size has been growing in past years for use in house heating plants it has not been tried out for regular domestic use and it will be interesting to await results, as it is understood that the consumers are anxious to make the effort. We have heard lately of several small contracts being made with dealers by independent operators for pea coal at \$4.15 at mines to run until April 1, 1918.

Of the steam sizes buckwheat is strong at \$4 and sales have been made as high as \$4.20. Rice at \$3 is not unusual. Barley is not so strong, especially for P. & R. Ry. delivery and \$1.50 is the average, while culm has been known to sell from 60 to 75c. per ton. One independent operator has been advertising 50,000 tons of this material for sale at \$1. Lately inquiries have come in from western points for culm, but most of such queries have been declined on account of lack of cars to ship.

The retail men have now entered upon the second half of October and as a consequence in conformity with the Government order have issued a new price schedule, which will continue to change twice a month from now on. The high and low ranges of their prices are as follows:

	Egg	Stove	Nut	Pea
Highest.....	\$8.50	\$8.60	\$8.80	\$8.00
Lowest.....	7.85	8.10	8.30	6.90

Hardly two dealers have similar quotations, with variations of all kinds in between these given herewith. It is understood that the local coal committee has received a number of complaints about dealers increasing the charge for carrying coal into the cellars from the regular figure of 25c. to 30c. and then on up to as much as 50c.

It goes without saying that the shippers have no complaint to make as to their accounts with the dealers, prompt payment being the rule, with almost no slow accounts and the outstanding sheets were never cleaner. However, one small failure of a retailer was reported lately, but as he was never strong it has no bearing on the general situation.

The prices per gross ton f.o.b. cars at the mines for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line	Tide	Line	Tide
Broken.....	\$4.55	\$5.70	Buck.....	\$2.90 3.50
Egg.....	4.45	5.75	Rice.....	2.40 3.40
Stove.....	4.70	6.00	Boiler.....	2.20 3.30
Nut.....	4.80	6.05	Barley.....	1.90 2.15
Pea.....	3.40	4.30		

Bituminous—The arrivals of bituminous do not by any means meet the demand at this time, but while the reports from many sections of the country are somewhat pessimistic it cannot be said that the situation here is exactly serious. Of course, most plants continue to run on a somewhat close margin, but even at that among the larger users fairly large stocks continue to be maintained in reserve. As has been the case right along the chief complaint is from the smaller users. The shippers are continually urged by these customers to procure coal for them regardless of cost. Others threaten, but so many complaints have recently been made to Washington that the notices from the Fuel Administrator calling attention to them has long ceased to interest the shippers, simply because they cannot get the coal. With their contract business still only partially covered, together with increased preferential shipments for the railroads, the prospects of there being any spot coal are growing more remote.

The car supply in the Pennsylvania districts continues to run from 30 per cent. to 50 per cent. The trade is dominated by this factor and there is not the least doubt that production can be greatly augmented if the railroads were in position to make better supply of empties to the mines. The movement after loading can be said to be fairly good, with occasional instances of cars an unusual time in transit. In the Fairmont district the car situation is still acute. With a total of 3165 distributed during the week, only 896 were actually left for the commercial trade after deductions were made for railroad fuel and preferential Lake shipments.

Various people who have gone into the region to purchase from wagon loaders have learned that despite the extra 75c. allowed them for loading, there is no considerable quantity of this coal to be had. Many of the loaders are getting a better

price by selling much of their product at retail to the local domestic trade in their vicinity.

The shippers here do not seem to have lost hope of securing a modification of the \$2 price order. They express surprise that the authorities have not seen fit as yet to endorse the wage increase for the central district miners. They feel that it is inevitable. The threat of Government operation of the mines emanating from Washington does not seem to have met with any particular response one way or the other. It is a well-known fact that since the price was set at \$2 numerous operators have offered to turn their properties over to the Government if they could be guaranteed an ordinary return from their investment.

BALTIMORE

The trade and consumers exercising strictest economy in coal of all kinds. Deliveries very light with demand steadily increasing. Many uncertain points for trade.

Bituminous—Not only consumers of fuel but all branches of the trade in this commodity are being forced to the strictest economy in order to tide over the scarcity here. Many big plants are running on a starvation allotment, and there have already been some instances where industries of importance have been forced to bank fires for various periods while awaiting a few car loads of coal to assure them continuing for another brief period.

Coal men and the railroads are daily deluged with appeals for fuel, many coming from plants that are handling Government work. Such plants are being given more or less preferential treatment, and the general contract delivery plan has been sadly upset. No one is getting anything like the amount of contract coal that could be wished, and there is practically no free coal on the market. Occasionally a little wanders in on all-rail basis, and then is sold at Government price mine basis with freights and a considerable haulage charge tacked on.

The failure of the appointment of a coal administrator for Maryland or of a regulating committee has kept open this question of charge that is made for hauling. One result is that there is practically no free coal coming to Tidewater, and much contract coal has been diverted from the piers, where it must be sold at Government price in every respect. This has created a situation where a number of water-front plants that always barged coal, have now been forced to send cars and trucks to get fuel from railroad sidings or yards at distant points. These firms generally are making no kick at cost, the only idea being to get through enough fuel to keep running.

The new Maryland Coal Jobbers Association has held several meetings to consider the status of that important branch of the coal business, and following the operators' meeting in Pittsburgh last Tuesday and of the National Coal Jobbers Association in Chicago on Wednesday, both attended by Baltimore coal interests, some move will probably be planned to lay the case of the jobbers before the Washington authorities.

Anthracite—The hard coal men are under heavy pressure here. Hundreds of homes, and many large buildings of a public or semi-public character are still unsupplied with coal. As the weather gets colder the appeals become more urgent. Some days a few cars straggle in and on others there is little or no delivery, the whole movement being far short of requirements. Coal men are apportioning their meagre supplies as best they can.

A feature that adds tenseness to the situation is that a number of manufacturing plants, which ordinarily use only soft coal, have been sending around trucks to yards of hard coal men, buying a few tons here and a few there, wherever it can be wheedled from the owners. The entire fuel situation here as a matter of fact is causing grave concern.

Lake Markets

PITTSBURGH

Slightly increased offerings. More evidence of stocking coal. Price may be raised 75c.

Car supplies are a trifle better this week than last week and production on the whole is fully up to the average of the past few months. Lake shipments are heavy but are about to begin decreasing, as the end of the Lake season is now only five or six weeks distant.

Offerings of coal in the open market, and at the \$2 price, have increased some-

what. One large consuming interest reports that it picked up 53 carloads last week, the largest amount it has gathered in any week since the price was fixed. A large steel interest, which has plants in various sections, is motor-trucking coal from "wagon mines" to its plant near Pittsburgh, using some of the coal there and transshipping the balance by rail to two of its plants in other districts. The coal is bought at \$2 at the mine, the buyer doing the trucking.

The State and National fuel administrations are daily getting together more evidence of large accumulations of coal by consumers. Particular attention has been attracted by the 400,000-ton pile of the Big Four in southern Ohio, which was piled higher than this grade of coal will stand and has taken fire. Strong hopes are entertained that through the cessation in the near future of Lake shipments, and by releasing the coal that has been going into stock piles, the supply of coal for consumers at large will be increased sufficiently to meet necessary requirements.

The price question is unsettled. There is a definite report that the Fuel Administration will advance its prices 75c., this to cover three things, increased margin to the operator, an advance in wages and a transfer of the brokerage from the buyer to the seller. According to this, the price for Pittsburgh district mine-run would be \$2.75 to consumers, brokerage if any to be paid by the operator.

We continue to quote the market at \$1.75 for slack, \$2 for mine-run and \$2.25 for screened coal, per net ton at mine, Pittsburgh district, with 15c. additional for sales made by brokers.

TORONTO

Little coal in hands of dealers. Deliveries much behind. Most large consumers have supplies laid in. Dealers' profits to be fixed by Fuel Controller.

There is very little coal in the yards of dealers many of whom are refusing to accept orders being much behind with their deliveries. Most large consumers have secured their winter's supplies at an earlier date than usual. It is estimated that about 68 per cent. of the season's requirements have been met, the total being put at about 760,000 tons, of which 460,000 tons have been delivered.

Coal is now coming forward slowly but H. A. Harrington, assistant fuel controller for Ontario, states that ample supplies will be forthcoming by Nov. 15. The Fuel Controller will fix prices so as to allow a profit of 50c. per ton to retail dealers and wholesale dealers and brokers profits will be on a lower scale. Severe penalties will be imposed for violating the regulations.

Quotations for best grades per short ton are as follows: Retail anthracite egg, stove, nut and grate, \$9.50; pea, \$8.50; bituminous steam, \$9; slack, \$8 to \$8.50; domestic lump, \$10; cannel, \$11; wholesale f.o.b. cars at destination three-quarter lump, \$7 to \$7.50; slack, \$6.85 to \$7.

BUFFALO

General situation unchanged. Jobbers doing next to nothing in bituminous. Prospect of relief small, as authorities claim that coal is moving up to average. Anthracite going fast by Lake, but scarce in city.

Bituminous—The jobbers are still complaining that they have no business left and are wondering how the deadlock is going to be brought to an end. The reports of this or that consumer running out of coal multiply and there are other reports of the Government ordering jobbers to meet these demands, when in fact they have no coal to use in any way. It is an odd state of things.

It is quite possible that the coal meetings held in Chicago and Pittsburgh this week will accomplish some sort of understanding with the authorities, so that the jobber will be enabled to go on again, otherwise he might about as well suspend entirely, for there is no present place for him in the trade.

Until a better understanding can be had with the Government authorities on the price and movement of bituminous the prices will remain nominal as before, with the slight variations made possible by differences in freight rates. Present prices per net ton, f.o.b. Buffalo, are as follows:

	Slack	Lump
Pittsburgh.....	\$3.30	\$3.80
Bessemer.....	3.25	3.75
Allegheny Valley.....	3.15	3.65

Anthracite—The same rush of tonnage in the Lake trade is kept up. Shipping agents continue to complain that they would forward more if they could get vessels freely, but the amount is much above the average, without reckoning in the Ca-

nadian shipments at all. The committee at Cleveland is accused of working against this port, for when fuel runs short and aid is asked of it the reply is that it has no jurisdiction over Buffalo, but if a chartered vessel fails to get its cargo promptly it is ordered to an Ohio port to load.

The city trade is getting but a small supply and the clamor is great. That the need is not great is the idea of the shippers, so they are engaged in putting off the consumers and retailers who are teasing them for coal. This city is full of outside dealers, especially from Canada and Michigan, all vainly trying to urge the shippers to sell them coal, but only about a proportion such as they have sold in former years is allowed them.

CLEVELAND

Local market quiet. Ohio situation improved. Large decrease in Lake tonnage. Production curtailed by petty labor strikes.

The local market has been quiet and featureless the past week. The mild weather and the diversion of 20 per cent. of the coal produced at the Ohio mines, on Oct. 16, from Lake to retail dealers has materially helped the Ohio situation.

Shipments of Lake coal decreased considerably due to shortage of cars and local labor troubles at the mines, and several vessels were forced to go up light on account of the shortage of coal at Lake Erie loading docks. The tonnage of Lake coal loaded for the week ending Oct. 20 amounted to about 900,000 tons, showing a decrease of about 100,000 tons as compared with the previous week.

While the car supplies at most of the Ohio mines only averaged 60 per cent. the past week it was difficult for several of the operations to produce enough coal to load even this small percentage of their capacity, due to numerous petty strikes and the general feeling of unrest among a great many of the mine workers. It is sincerely hoped that some plan will be worked out at the Pittsburgh meeting, which will insure better cooperation of the miners, as well as the railroads, and make it possible for the operators to work their mines to the limit and produce the largest tonnage possible.

Following are the market prices per short ton, f.o.b. Cleveland:

	Three-quarter	Mine-run	Slack
No. 8.....	\$3.30	\$3.05	\$2.80
Cambridge.....	3.30	3.05	2.80
Middle District.....	3.45	3.20	2.95

Jobbers' prices are 15c. per ton higher than the above prices.

TOLEDO

State fuel commissioner appointed. Demand for coal is still far in excess of the supply. Steam trade conditions are most unfavorable. Committee regulates retail prices of coal, and fixes dealer's profit at \$1.40 per ton.

Certain small cities in northwestern Ohio are still threatening to seize coal on tracks within their boundaries. Judge William Klinger of the Common Pleas Court at Lima, Ohio, refused to grant the Erie R.R. an injunction restraining Mayor Fry of Spencerville, Ohio, from seizing cars of coal standing upon the company's tracks. Dr. Garfield, United States fuel administrator, says the mayors and officials of states who announce they are going to seize coal on tracks are playing politics at the expense of the public, and are in no way alleviating the suffering of the people.

Several small industrial plants about Toledo have closed down, giving as a reason inability to secure an adequate fuel supply. Shipments arriving are all orders on old contracts, and the concerns which did not renew contracts at their expiration are not getting any coal. The situation of the steam trade is becoming more and more strained, and it is only a matter of a few weeks at the most before the majority of the factories will be forced to close owing to the shortage of fuel. Government officials are advising a "hand-to-mouth" policy for steam users until the suspension of Lake navigation which will release sufficient coal for all.

It is estimated that only one family in 30 in this city has enough coal to last them through the winter. Recently, a list of retailers whom the state will supply with coal was published, and about 375,000 tons were ordered from the mines to this section of Ohio. At present the retailers listed have 1200 tons of Hocking lump which they are offering to the public at \$5.75. Mayor Simpson of Lima, Ohio, seized 18 cars of coal at that city last week and distributed it among 1500 families. It is reported no more coal will be seized by the officials of that city.

DETROIT

Scarcity of steam coal continues. Distribution of domestic stock is now under direction of municipal coal dictator. Lake shipments slump off.

Bituminous—Inquiry for steam coal continues active in the local market. Supplies are showing no improvement in the way of increasing volume. Wholesalers and jobbers say there is no free coal coming to Detroit at present and that they are having no success in efforts to find coal which can be brought to the city to supply customers, who are not being cared for under contract arrangements. Numerous manufacturing plants are operating with only a few days supply and trusting to luck that more stock will be obtainable. Meantime hope is encouraged by the expectation that a more plentiful supply will be assured when the season of navigation on the Lakes terminates, about the middle of December. Some of the jobbers, however, are not inclined to place too great faith in the assertions that coal will then be plentiful. The argument is advanced that many other sections of the country also are in need of coal and that the distribution of the 4,000,000 or 5,000,000 tons a month that are now going to Upper Lake ports will be over so wide an area that only a limited amount will be obtainable.

Anthracite—In the first four days during which Police Commissioner James Couzens has been serving as coal dictator of Detroit, applications have come from 7742 homes unsupplied with fuel and about 1000 homes have been given an emergency ration of one ton or so, preference in delivery being given to homes in which there is illness, young children or aged persons. In some instances it is said protests have been made by those supplied, because they did not receive the grade or kind of coal they have been accustomed to using. Mr. Couzens has announced that some of the retailers are not justified in holding coal in their yards, which, they say has been sold to customers, who have been delivered a partial supply and haven't space to care for a larger amount. He has ordered that this coal be used in supplying others. Assurance is received that orders have been placed from Washington for 500 cars of coal to be shipped to Michigan from Pennsylvania mines at once.

Lake Trade—Coal for Lake shipment is coming forward in smaller volume and the amount loaded last week is expected to fall quite a distance short of the earlier average of over 1,000,000 tons a week.

COLUMBUS

The coal trade in Ohio is still in a muddle. Federal authorities are now in charge. Domestic consumers are clamoring for coal but relief is coming slowly.

The principal event in the coal trade in Ohio during the past week was the announcement that Ohio Fuel Administrator Johnson had taken over the distribution of coal to domestic users, superseding the Ohio Clearing House. Just why there have been so many sudden changes in authority is unexplained, but coal is badly needed and the purpose of officials is to relieve the situation, rather than discuss matters of authority and regulation.

The cold snap of the past week caused quite a rush of domestic orders and dealers were entirely unable to take care of the business. Their stocks were low or exhausted and efforts to replenish them met with failure. On the whole, the situation is badly mixed up and unless relief is afforded soon, suffering will prevail in Ohio.

Retailers are apportioning their small stocks among many orders, allowing but a ton or at most, two tons to a customer. Retail prices continue steady at the levels which have maintained for some time. Pocahontas is quite scarce and sells in the neighborhood of \$7. West Virginia splints are also scarce. Hocking lump is strong between \$5.25 and \$5.50. Anthracite is practically out of the market.

The steam business is active in every way. Many public utilities and large factories are being operated from hand to mouth. Some few have succeeded in laying in a surplus. The Ohio Clearing House, during its authority, supplied a number of utilities with fuel. Power house and interurban railroad plants are hard hit. Railroads are using about 10 per cent. more fuel than ordinarily and many manufacturing plants are operated 24 hours every day.

CINCINNATI

Discussion of plans to avert a serious shortage occupies the attention of the trade and the public, but nothing definite has yet been accomplished. Prices are nominal, in view of the situation.

The coldest weather of the season, following the first snow a week ago, has again

emphasized the fact that there is not enough coal to go around, and the only apparent relief in sight is the closing of Lake navigation. As this may be some weeks ahead, the public does not view the situation cheerfully, nor does the trade.

Federal officials in charge of fuel administration take the view that the Northwest must be supplied while the Lakes are still open, and suggest only that this section bear its fuel troubles philosophically. However, large industrial consumers are naturally worried about their inability to assure themselves of a continuous supply of fuel, indispensable for their needs, while the public is facing continued cold weather with practically no coal on hand.

Dealers are helpless, being unable to secure anything like enough coal to supply their demands, while operators point to labor troubles, actual and threatened, and to the inadequacy of transportation facilities, as the reasons for the present limited production as compared to the demand.

LOUISVILLE

Shortage of coal everywhere and none can be bought in this market. Orders offered from all quarters. Southeastern Kentucky-Tennessee supply less than normal. Railroad confiscation continues.

There is practically no coal for sale in this market. The retail field is bare and the wholesale trade is sold far ahead, while confiscation by the railroads, particularly the Louisville & Nashville, continues unabated. Wholesale business booked is far behind on deliveries and most of the operators represented here have form letters with which they reply to inquiries from all parts of the Central West.

Operations are increasing in the southeastern Kentucky-Tennessee field where, however, production seldom has exceeded 40 per cent. of capacity up to this time. There is a 100 per cent. supply of cars at the mines but the production is low. All signs of friction between operators and workers have disappeared and there are more "six-day men" at work in this field than has been the case for a long time. Increased production is counted on, although the output of the field is sold ahead for at least two months.

The Louisville & Nashville continues to confiscate coal in both ends of the state. Confiscation, however, is said to be principally restricted to coal billed to points off its own lines, while the railroad is undertaking to see that industries on its lines are not left in want.

BIRMINGHAM

The local market is experiencing a strong demand from a wide range of territory. Retail prices arrived at by local dealers are practically individual. Production little, if any better than last week. Car supply short in some instances.

Local brokers and sales agencies are being besieged with inquiries for both steam and domestic coal, such demand not being confined solely to Alabama territory. A number of brokers received telegraphic instructions from Washington to make preferential shipments of steam and domestic coal to the Atlanta district. Many of the retailers in Atlanta and other Southern cities disposed of their entire stocks of domestic coal to steam users prior to the announcement of Government schedules, and are now having difficulty in securing a supply for winter stocking. This territory is ordinarily supplied in the main from the Kentucky and Tennessee fields, where a prolonged strike has just ended. Several local companies are now making heavy shipments of coal to railroads and other public utilities in the Atlanta district.

Under the Government's method of arriving at the prices to be charged the holder by retailers, each dealer has an individual price at which he is now selling coal and making adjustments on sales made since Oct. 1. The dealer who held up his prices in 1915 to the highest margin of profit is now permitted to charge relatively higher figures for his coal. However, retailers claim to have lost from 15 to 20c. per ton on sales during 1915. Much of the coal now being sold was stocked under contracts made at unfavorable figures, and it is claimed that losses will be sustained in most instances. One of the largest domestic dealers quotes the following prices: Cahaba lump, \$5.35; Sipey (Black Creek), \$5.45; Dogwood (Montevalle), \$6.15; Corona and Carbon Hill, \$4.50.

No concerted pressure has been brought to bear on Government Administrator Garfield recently to secure revised schedules to absorb the recent advance in wages by operators, though individual appeals are understood to have been filed. At the time the Government schedules were announced Mr. Garfield is said to have promised that the desired relief would be given, the prices then fixed being based on September wage schedules.

Coke

CONNELLSVILLE

Production unsatisfactory, but with better outlook. No differential for foundry coke.

Car supplies on the whole were particularly poor last week and coke production and shipments suffered accordingly. Thus far this week car supplies are better and the outlook on the whole is decidedly more promising. On an average, from six to 12 furnaces of steel companies, tributary to the Connellsville coke region, are banked or cold on account of lack of coke. The merchant furnaces are experiencing some restriction, but not as much as in the case with the steel interests. While some hopes are entertained that the 100% priority order in favor of car supplies for the Connellsville coke region, now in its third week, will result in somewhat better coke movement, there are no definite expectations, for the railroads are in bad shape, on the whole, with yards and sidings congested and motive power insufficient, while bad weather, now not far distant, promises as usual to decrease operations.

Offerings of furnace coke in the spot market continue to be light. There is heavier demand than ever this week, and from all over the country, while the offerings involve but a small fraction of the tonnage inquired for.

No differential for foundry coke has yet been established, although strong representations have been made at Washington that this is needed. Only a few operators are undertaking to make their own differential and offer foundry coke, but some have been offered at \$7. Occasionally an operator sells foundry coke at \$6, but only to make friends with a consumer for prospective advantage in future.

We quote the market inactive at \$6, at ovens. By reason of conferences about three weeks ago with Washington the majority of coke brokers have been expecting a brokerage to be established on coke, beyond the fixed price of \$6, but the latest report as to fuel, that there is to be advance of 75c. in selling prices, with no broil. rage in addition, tends to upset these expectations with respect to coke.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Oct. 13 at 339,002 tons, a decrease of 13,469 tons, and shipments at 338,177 tons, an increase of 22,906 tons.

Buffalo—The coke market still partakes of the character of the bituminous market. Since the establishment of the \$6 oven price, the jobbers claim not to be able to get any coke, as all of it goes by contract at figures supposed to be much higher than the regulation spot price. Less report of shortage on the part of consumers is made than is the case with consumers of coal. The receipts of iron ore at this port continue large and steady, being for the week 257,187 gross tons. All of the furnaces in this territory are running actively.

Birmingham—The local coke market continues strong, producers being able to handle only a small percentage of the business offered. There has been no change in quotations over last week, but some adjustment both in furnace- and foundry-coke prices is expected in the course of the next week. There is a marked scarcity of both grades.

Middle Western

GENERAL REVIEW

Strikes cause majority of mines to close in the southern and central Illinois, also the Clinton, Indiana, fields. Demand for fuel increasing and many towns face fuel famine.

The coal situation in the Mid-West territory became critical the past week due to the runaway strikes in the mines of the southern and central Illinois, also the Clinton, Indiana, fields. These started the forepart of this week, and spread rapidly throughout the two states. Miners at Christopher, Illinois (Franklin County) expecting the new wage increase to be in their pay envelopes the 15th of this month, and losing patience by the delay on the part of the fuel administrator in announcing the new scale of prices which the U. M. W. A. officials had promised them would be effective on or before this date, refused to work Tuesday and were instrumental in spreading sufficient dissatisfaction to cause all but three of the mines in that county to cease operations.

The strike spread rapidly to adjacent districts—Standard, Fifth and Ninth and

Springfield, eliminating more than 165,000 tons daily from a market which has for some time been short of fuel. In the Franklin County field, three mines—Benton Coal Co., Hart-Williams Coal Co., and the Middle Fork Mining Co., with production of approximately 6000 tons per day operated during the entire week. The other 18 mines of the county, some of which are the largest producers in the country, were idle, and the loss in production was easily 40,000 tons per day.

More than 7000 men were idle in the Clinton, Indiana field for three days, but at least one-half of this number returned to work the last two days of the week. Operations in the northern Illinois Thin Vein field were not affected by this strike neither were the mines in Sullivan, Linton and Knox counties in Indiana, except in isolated cases.

According to President Frank Farrington of the Illinois Mine Workers most of the men were expected to return to work on Monday the 22nd, but leading operators are of the opinion that none of the mines will operate to capacity until Dr. Garfield announces the new scale of prices.

Freezing weather part of the week and the fact that a majority of the retailers have empty bins has created more or less apprehension on the part of consumers and coal men. Retailers who secure their coal requirements through Chicago wholesalers arrive daily in large numbers and are making desperate efforts to secure coal of any description. This fact alone proves the situation is acute notwithstanding bulletins issued from Washington to the contrary.

Shipments of anthracite for Western territory have been light and not in keeping with current demand. This is also true of shipments of Pocahontas, Ohio and Eastern Kentucky coals. Embargoes on Eastern roads interfere with shipments to some extent, but demands from other markets are the factors which prevent these coals in any quantities from reaching this market.

CHICAGO

City of Chicago facing fuel famine. Retailers have less than five days' supply on hand. Strikes in Indiana and Illinois shut off supply.

At the present time the city of Chicago is face to face with a more serious shortage of fuel than has existed at any time heretofore. Retailers have but a small amount of fuel in stock and many report empty bins. The effectiveness of the strike in the Illinois field will be felt by the dealers by the middle of the week, and as their stocks of Eastern coals are practically nil, a fuel famine will exist until such time as supplies are again forwarded to the city.

The supply of anthracite in Chicago is far below the amount held in storage at the same period last year. Some of the suburban towns are entirely out and their stocks of all grades are depleted. At Steger the four principal dealers are out of fuel and until such time as adequate supplies can be obtained the Steger & Sons Piano Co., around which industry the town was built, have stepped into the breach and offered to sell to the townspeople, as well as its employees, fuel at cost.

Loop office buildings in the heart of the city will feel the effect of the strike by the middle of the week, and coal men predict numerous buildings will be without heat and elevator service within the next five or six days.

Receipts of West Virginia, Ohio and eastern Kentucky coals have been unusually light, dealers making deliveries as fast as shipments arrive with no opportunity to stock up for later demands.

Quotations in the Chicago market are as follows, per net ton f.o.b. cars at mines:

	Williamson and Franklin	Saline and Harrisburg	Fulton and Peoria	Springfield	Cartersville	Grundy, La-Salle, Bureau and Will
Steam lump.....	\$2.20@2.35	\$2.20@2.35	\$2.20@2.35	\$2.20@2.35	\$2.20@2.35	\$2.65@2.80
Domestic lump.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Egg or furnace.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Small egg or nut.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Stove.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Chestnut.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Pea.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Washed egg.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Washed stove.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Washed nut.....	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.20@2.35	2.65@2.80
Mine-run.....	1.95@2.10	1.95@2.10	1.95@2.10	1.95@2.10	1.95@2.10	2.40@2.55
Screenings.....	1.70@1.85	1.70@1.85	1.70@1.85	1.70@1.85	1.70@1.85	2.20@2.35
Washed slack.....	1.70@1.85	1.70@1.85	1.70@1.85	1.70@1.85	1.70@1.85	2.20@2.35

	Clinton and Sullivan	Knox and Greene	Eastern Kentucky	Pocahontas and W. Va.	Penna.	Hocking	West Va. Splint
Dom. lump.....	\$2.20@2.35	\$2.20@2.35	\$2.65@2.80	\$2.25@2.40	\$2.25@2.40	\$2.60@2.75	\$2.40@2.55
Steam lump.....	2.20@2.35	2.20@2.35	2.65@2.80	2.25@2.40	2.25@2.40	2.60@2.75	2.40@2.55
Egg.....	2.20@2.35	2.20@2.35	2.65@2.80	2.25@2.40	2.25@2.40	2.60@2.75	2.40@2.55
Small egg or nut.....	2.20@2.35	2.20@2.35	2.65@2.80	2.25@2.40	2.25@2.40	2.60@2.75	2.40@2.55
Mine-run.....	1.95@2.10	1.95@2.10	2.40@2.55	2.00@2.15	2.00@2.15	2.35@2.50	2.15@2.30
Screenings.....	1.70@1.85	1.70@1.85	2.15@2.30	1.70@1.85	1.75@1.90	2.10@2.25	1.90@2.05

MILWAUKEE

Coal supply more satisfactory, but deliveries to consumers are weeks behind.

Sharp and frosty weather serves to keep the coal supply in the public mind and to still further stimulate the demand for fuel. Everybody seems to want coal, and the matter of price does not cut much figure. The rates fixed on Sept. 1 still rule and it may be taken as a surety that there will be no reduction unless by Government edict. Dealers say they cannot live on less.

While Milwaukee may now be said to be fairly supplied with coal, deliveries are weeks behind, with little prospect of a betterment. A reliable estimate places the number of homes awaiting coal supplies at 65 per cent. There are not a sufficient number of supply stations for the size of the city. As a result, teams and trucks are forced to wait in line for opportunities to load, and instead of being able to deliver four loads a day, as they should, they only accomplish two. The inevitable outcome will be that when below-zero weather arrives conveyances will be held at a great premium, thus adding to the cost of fuel.

A representative of the leading coal company of the city is authority for the statement that up to date more coal tonnage has been ordered than was delivered last season up to Mar. 1. He says people have been ordering beyond their immediate needs and by so doing discommoding others actually in want of fuel.

Gov. E. L. Philipp, after conferring with W. N. Fitzgerald, state coal administrator, states that there is an ample supply of soft coal within the state and that anthracite is arriving more freely. In his opinion there will be sufficient hard coal for all before real cold weather arrives. On the other hand, the State Council of Defense is somewhat disturbed over the supply of bituminous coal in the interior of the state and are urging the necessity of increased consignments.

A new feature of the coal controversy at Milwaukee is the possible entry of the city into the business. At the last meeting of the Common Council, a resolution was introduced calling for an investigation of the coal situation, with a view to the city purchasing coal and selling it to the poor at cost.

At a conference of the mayors of cities in the Fox River Valley it was decided to compile a report on coal prices and settle upon a maximum price for fuel in each city. The establishment of municipal yards is also receiving consideration.

The Milwaukee Coke and Gas Co. is suing the Virginia Fuel Co. in the United States Court at Cincinnati, Ohio, for \$50,000 for alleged nonfulfillment of contracts to deliver coal. In its answer the Virginia company avers that the plaintiff used force and threats to get coal that had been ordered.

Fires in the coal piles on Milwaukee docks are of daily occurrence and in some instances the city fire department has had to render assistance. The fires are due to spontaneous combustion.

ST. LOUIS

The strike eliminated all sales, as there was nothing to offer and St. Louis was on the verge of a famine until the mines resumed. Steam and domestic supply both exhausted, and country trade in a serious condition. No eastern smokeless, and very little Arkansas. Shipments of anthracite light. Car supply better.

With the strike of the past week practically over, the trend was to replace the storage stocks that have been exhausted for both domestic and steam.

The latter part of the past week only about four of the mines in one entire district were working. Two of these were coöperating, and the other two worked with the promise that if an advance was secured the men would be taken care of.

It is quite evident that there is some sort of an organization at work among the miners, for in spite of what the union officials attempted to do, the men went out. It seems that the headquarters of at least one of these outfits is at Marissa, for on various mornings several men left on different trains for different districts to encourage the men to stay out.

The statement of T. T. Brewster of the 5th and 9th District Bureau that an organization of L. W. Ws. or some other malcontents is at work was borne out by reports from the different sections. The first fields that went out were those of the Standard and Mt. Olive districts, which were followed rapidly by nearly all the mines in Williamson and Franklin County. Many of the miners were opposed to going out, but were forced into so doing by their fellow workers.

The railroad delayed the delivery of the tonnage of coal that had been shipped in many instances, and the tonnage confiscated is still unknown.

In St. Louis proper the situation was eased by mild weather for a few days. At the end of the week, however, practically the entire tonnage of reserve coal in the yards in this city had been disposed of, and the only thing in sight was coal in transit, on which there was some doubt as to what was to be delivered. Almost anything that would burn was accepted.

Had the miners remained out another week, St. Louis would have been out of fuel and business paralyzed.

The small tonnage coming in since the mines resumed is taking care to some extent of the current demand, but if exceptionally cold weather occurs the problem is going to be a serious one.

The city government is considering the advisability of establishing 8 domestic coal yards in the poorer sections of the city. It has been suggested that the most efficient method of handling the local situation would be to appoint a local fuel administrator and to compel the dealers in the city to make a statement of how much coal is in storage, how much delivered in a day, and to whom, and in this way restrict the hoarding of coal and effect a proper distribution. This would also empower the fuel administrator to prevent the confiscating of coal by railroads unless they were in actual need, and would permit this official to take over coal from the railroads if it was more essential that the city should have it.

It is probable that something along these lines will have to be done if the present condition continues.

The tonnage from the Cartersville field for the next few weeks will be extremely light, and the same condition will prevail in the Mt. Olive field. The bulk of the coal from the Standard field is now going to the railroads, and the plight of St. Louis is unusually bad.

The surrounding country is going to face an actual coal famine on account of the lack of some head or bureau to see that there is a proper distribution of fuel.

The railroads still continue to take coal in amounts that are apparently above their requirements.

There is no West Virginia smokeless coal coming in at all, and the same may be said of Arkansas. The tonnage of anthracite is extremely light, and the supply in St. Louis is practically exhausted.

The only market prevailing in the past week is that at the Government price, there being no open market coal this week, everything having been sold up ahead. This market, per net ton f.o.b. mine, is as follows:

	Williamson and Franklin Co.	Mt. Olive and Staunton	Standard
6-in. lump.....	\$2.35	\$2.35	\$2.35
3x6-in. egg.....	2.35	2.35	2.35
2x3-in. nut.....	2.35	2.35	2.35
No. 2 nut.....	2.35	2.35	2.35
No. 3 nut.....	2.35	2.35	2.35
No. 4 nut.....	2.35	2.35	2.35
No. 5 nut.....	1.85	1.85	1.85
2-in. scrags.....	1.85	1.85	1.85
2-in. lump.....	2.35	2.35	2.35
3-in. lump.....	2.35	2.35	2.35
Steam egg.....	2.35	2.35	2.35
Mine run.....	2.10	2.10	2.10

	Washed:	Washed:	Washed:
No. 1.....	2.35	2.35	2.35
No. 2.....	2.35	2.35	2.35
No. 3.....	2.35	2.35	2.35
No. 4.....	2.35	2.35	2.35
No. 5.....	1.85	1.85	1.85

Williamson & Franklin Co. rate is 87½c.; other fields, 72½c.